

**DRAFT PLAN**

**COMPREHENSIVE  
DISTRICT AGRICULTURE PLAN  
(C-DAP)**

**DISTRICT JHAJJAR  
HARYANA**

**COMPREHENSIVE DISTRICT AGRICULTURE PLAN (C-DAP)  
FOR RASHTRIYA KRISHI VIKAS YOJANA  
OF XI<sup>TH</sup> FIVE YEAR PLAN**

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## CHAPTER I

### Introduction

The economic reforms commenced in 1991 has 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 sharp deceleration in growth after 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 10<sup>th</sup> 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 11<sup>th</sup> 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 but 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 29<sup>th</sup> May, 2007 resolved that a special Additional Central Assistance Scheme i.e. National Agriculture Development Programme (NADP)/ 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, fisheries etc. more fully. 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 XI<sup>th</sup> 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 XI Plan provides an opportunity to restructure policies to achieve a new vision based on faster, broad-based and inclusive growth. It is designed to reduce poverty and focus on bridging the various divides that continue to fragment our society. It aims at putting the economy on a sustainable growth trajectory with a GDP growth rate of approximately 10 percent by the end of plan period and target a robust agricultural growth at 4 percent per year. 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 1<sup>st</sup> Five year plan in 1951. It 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. The 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. Keeping this in view the C-DAP of district Jhajjar is prepared 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. The Agriculture in the district (as in the state too) 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 farmers of the district 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 (coupled with other factors) 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 Jhajjar land used for agriculture will decrease but still there is no reason to believe that agriculture productivity cannot be raised. New science like GM crops, and new approaches like farming system and resource conserving technologies will always help us to face new challenges in agriculture development.



## **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 Jhajjar district was given to Krishi Vigyan Kendra, Jhajjar. 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
- INM, IPM, NRM, 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, Panchayati Raj Institution's members and farmers 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 (Kablana from AES-I, Badli from AES-II and Sasrauli from AES-III) 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/reports available with different government departments and PRA based exercises (earlier conducted by KVK and other agencies). The District Plan (draft), SREP and PLP of Jhajjr 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 Deputy Commissioner, Additional Deputy Commissioner, 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 to bridge possible gap and create environment for farmers' participation in developing and recommending Comprehensive District Agriculture Plan (CDAP).

**Following discussions 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 made their own fair appraisals in 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 risk associated were discussed.

**The possible changes in the management practices targeted 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 volume including nematodes and weeds.

- 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, FLDs and other activities in a farming system approach keeping in view the following-**

(i) Profitability of cropping system and the rate of return.

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

(iii) Farmers' inability to invest in the productivity enhancement as majority of farmers belongs 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.

## CHAPTER II

### General Description of the District

#### 2.1 Introduction

Jhajjar district came into existence on July 15, 1997. It was carved out of Rohtak district. It came under Hot and semi Arid South Eastern Agro climatic Zone. The district lies between  $28^{\circ} 19'$  and  $29^{\circ} 18'$  North latitude and  $76^{\circ} 13'$  and  $77^{\circ} 13'$  East longitude. It is surrounded by Rohtak district on the North, Rewari and Gurgaon districts in the South, the National Capital Delhi in the East and Bhiwani district in the West.

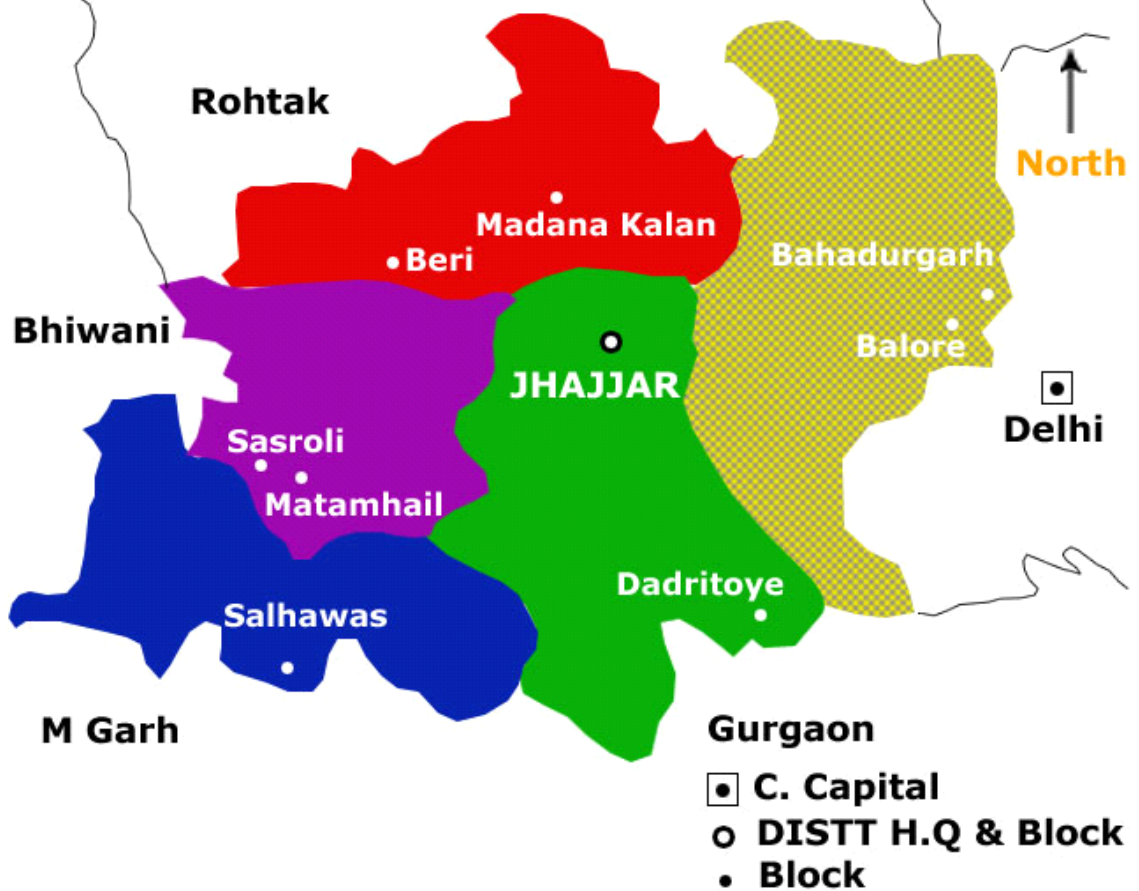
The farming sector today is undergoing to a dual nexus of stress in agriculture. On one side it has become energy intensive using more resources/natural resources while on the other hand it has little scope to go on potential output stagnating the yield thereby production and lowering the land holding per capita. Under the present circumstances diversification through various enterprises like horticulture, bee keeping, mushroom production, dairy, poultry processing and preservation has become the sine stan alternative to the future time to come. The interventions in human resources for improvement in entrepreneurial activities in rural youths for self employment particularly with SHG & marketing skills is the need of the hour.

Despite much progress in agricultural research and education, a lot need to be done, which is reflected by considerable gap between the experimental and the actual farm yields. This has put a question mark on the sustainability of agriculture and the pace and efficacy of transfer of technology. The modified concept of Krishi Vigyan Kendras has assumed a great significance and a crucial role to play as far as the upliftment of the farming community is concerned. KVKs are now engaged in testing and refining of the technologies at KVK itself as well as the farmers' field that too location specific. On the other hand, these are acting as a strong motivating force for the farmers by way of providing quality seeds and the saplings. Thus, these are generating

resources also. In the light of the approved mandates and to cater the needs of the clientele, KVK, Jhajjar took various of initiatives during 2006-07. It is needless to mention that without the able guidance and financial support from the ICAR, New Delhi and Directorate to Extension Education, CCS HAU, Hisar, it would not have been possible to implement the plan of work and achieve the targets. This report is a collective effort of the achievements of colleague teachers/extension specialists at KVK, Jhajjar.

## District Map

**MAP OF DISTRICT JHAJJAR WITH LOCATION OF KVK BLOCKS AND VILLAGES ADOPTED BY KVK**



## 2.2 District at a Glance

No. of blocks	5
Total villages	261
No. of gram Panchayats	262
Total Population	880072
Male population	476475
Female population	403597
SC/ST population	156531
SC./ST male population	84590
SC/ST Female population	71941
Total literacy (%)	62.0
Male (%)	70.0
Female (%)	51.0
SC /ST total literacy (%)	52.0
SC/ST Male Literacy (%)	62.2
SC/ST Female Literacy (%)	40.0
Total geographical area (ha)	191000
Net cultivated area (ha)	161000
Gross cropped area (ha)	240000
Cropping intensity (%)	151
No. of farm families	91393
Marginal farmers (0-1 ha)	30405
Small farmers (1-2 ha)	11210
Semi medium farmers (2-4 ha)	9961
Medium farmers ( 4-10 ha)	7155
Large farmers (> 10 ha)	1344

<b>Major crops</b>	
Paddy (ha)	17000
Jowar (ha)	25400
Bajra (ha)	26800
Pulses	7400
Wheat (ha)	85100
Rapeseed & Mustard	56400
Sugarcane (ha)	1800
Fruits (ha)	512
Flowers (ha)	389
Vegetables ( ha)	3137
Total Irrigation area (ha)	105000
Irrigation by canal (ha)	39000
Irrigation by Tube well (ha)	66000
<b>Livestock</b>	
Cattle	37300
buffaloes	256400
Indigenous cow	11500
Cross bred cows	3800
Sheep	26100
Goat	10600
Camels	1100
Pigs	5600
Poultry	104200
Milk production per animal (Kg/lactation)	1120
Vety. Health Institutions	34



<b>Average yield (q/ha.)</b>	
Paddy	17.0
Wheat	38.64
Bajra	13.1
Guava	199.0
Ber	151.0
Aonla	99.5
Citrus	62.0
Marigold	50.0
<b>Land holdings</b>	
Total farm families	91393
Marginal farmers (0-1 Ha)	30405
Small farmers (1-2 Ha)	11210
Semi medium farmers (2-4 Ha)	9961
Medium farmers (4-10 Ha)	7155
Large farmers (more than 10 Ha)	1344

**Note: Variation in data is due to different sources. Where-ever discrepancy is recorded in the data, it was cross-checked and the most reliable data/ figure/ source is quoted/ used.**

**Table 1: General information**

General						Population (As per the 2001 Census)				
Taluk/Block	Villages		No. of Revenue Villages	Area (ha.)	No. of G. Ps.	Male	Female	Total	S.C.	S.T.
	In-habitated	Un-in habitated								
Jhajjar	64	08	72	47896	64	483200	449104	932304	46620	-
Beri	36	02	26	3545	37	58982	44018	103000	36891	-
Salhawas	36	04	40	20971	36	43580	31420	75300	12604	-
Matanhail	45	01	45	42677	42	137754	91736	229590	67877	-
B.Garh	63	06	69	51523	62	200208	163734	363942	41306	-

Source: Deptt. Of Agriculture

As per 2001 census, the population of the district was 1703736 out of which number of males and females were 923724 and 780012, respectively. There were 929 persons per square kilometer of area. The percentage of rural population to total population was 77.8% in the district. The overall literacy rate of the district was 62.0%

The area under forests and permanent pastures is very small in both the categories, which does not augur well for the humans as well as for the animals of the district. The cropping intensity of the district is 151%.

### **The Climate**

General gradient of land mass of Haryana from North-East to the South - West changes southern part of the state where slope is towards north. This leads saucer like depression in the eastern part of Jhajjar district. So, low lying areas have been adversely affected by water logging, salinity, efflorescence, alkalinity etc. basically near about Beri & Bhindawas lake. Soils are of three types viz., fine loam, coarse loam and relatively sandy loam. There is nothing particular about the flora and fauna of the district. Only a very small area is under forests. Weather can be divided into four seasons. It is cold between late November to middle of March, usually January is the coldest month. In winter season the temperature goes down up to 3<sup>0</sup>C and in summer season it goes up to 47<sup>0</sup> C. July to September are the month of South-West monsoon. October to November are the months of post monsoon i.e., transition to winter. Except for July to September, air is generally dry and April to June witness hot desiccating winds (loo) and dust-storms.

### **Rainfall**

The district receives annual rainfall ranging between 350 mm and 570 mm. Average

rainfall during the year was 537 mm, out of which 85% was received in July & August.

### **Availability of irrigation water**

Both canal and tubewell irrigation facilities are available in the district. Availability of the canal water is very scanty and available for a very short period of cropping. As far as underground water resources are concerned, 66 per cent of the total water of the district is either saline or sodic, thus making the use of underground water for crop production unfit.

The soil health of the district is of not good conditions. As per the soil health indices more than 2/3 of the soil is saline or alkali. The soils are medium to low in organic carbon. Most of the soils are deficient in N, P, Zn, Ca and P.

### **Existing Farming Systems;-**

In Jhajjar district the predominating existing farming system is **Agriculture + Animal Husbandry** followed by **Agriculture + Animal Husbandry + Horticulture**. The major cropping system under the existing farming systems is primarily **Bajra -wheat cropping with buffalo, Fallow - raya cropping with buffalo**. The district has significant areas under other cropping systems of rice- wheat, arhar (kharif pulse) - wheat, jowar-wheat, vegetable-vegetable, vegetable-wheat, fallow-wheat.

The increased acreage under rice has mainly been at the expense of pulses, Bajra. After the introduction of short duration Arhar the area under kharif pulses has mainly been occupied by this crop which remains some what static around 7 to 8 % of the net area sown. The wheat acreage also increased at the expense of pulse (gram), and barley.

## **Trends and shocks**

Wheat is the traditional food crop of the district while rice, introduced in the district during mid-1970s, now is the prevalent kharif crop. Active public interventions in the form of development of irrigation and input supply systems coupled with favorable output markets initially boosted the wheat and rice yields and returns thereby shifting the crop pattern in favour of these crops. The other prominent crops of mid-seventies especially Bajra, gram, pulses and sugarcane lost their acreage to the more promising crops of rice and wheat. The pulse (especially Arhar) and oil seed (raya) crops failed to gain much importance in spite of better varieties and suitability to the region owing to slackness and laggard approach of farmers towards adoption of these crops. Another important commercial crop of sugarcane also could not found favour over a long period owing to payment and delivery crises by sugar mills and yield stagnation.

After the strides in production (and return as well), the system (inclusive of crops, animals and allied activities) seems to have reached a plateau and stagnated over a last few years. In general, instead of the technological advances, the market forces are driving the changes. However, there exists ample scope for increase in production, productivity and income even with the adoption of existing technology within the system and its components. For this to happen area and crop/ enterprise specific gaps are to be identified and majority of the resource poor small and marginal farmers are needed to be assisted in the form of technical cum financial help to bridge these gaps.

The comprehensive District Agriculture Plan envisaged herein is aimed at holistic development of agriculture and allied sectors of the district in light of the above issues.

## **The VISION**

The Jhajjar district is dominated by Sorghum-Wheat, Bajra-Wheat and Rice-Wheat cropping systems. This followed by Bajra-Raya or Fallow-Raya cropping system. Almost 70% water is unfit for irrigation. The productivity growth in all crops is less. The use of input including nitrogen is less than many other Districts. The focus for productivity growth in crops has to be on input use and management. The green revolution varieties showed greater efficiency for fertilizers because of their short structure and more efficient dry matter partitioning to reproduction. The specific goal need to be targeted with following objectives:

1. Increasing the productivity growth rate of crops @ 4% per year in the 11<sup>th</sup> plan.
2. Maximizing the income of farmers by adding high value crops using micro-irrigation.
3. Generating employment opportunities through subsidiary occupation.
4. Improving water productivity and fertilizer use efficiency through conservation.
5. Incorporating integrated pest management including weed management strategies.
6. Decreasing the cost of cultivation for batter profit margins.

In situation where returns on alternate cropping systems involving pulses and oilseed, have been disappointing especially after the success of green revolution. Farmers are still desperate to increase returns in cereal based cropping systems. Any individual farmer always remains in search for higher returns and therefore in areas where there is no assured irrigation, technologies like micro-irrigation have to be perfected at farmer's fields. Such technologies will be more successful provided higher returns are ensured by introducing high value crops like vegetables and flowers. The effect of shift from flood

irrigation to micro-irrigation therefore would be to increase the average return when synergies of hybrid vegetables or flowers and even fruit are considered.

Due to fast urbanization of rural Jhajjar farmers can exploit new market opportunities and can earn more profits that are related to dairying especially large size dairies. Private firms such as Reliance will depend on same economic forces like retail markets around this district. Farmers of this district have to be trained on opportunities that exist after large scale urbanization of this district. A more diversified agriculture should offer a better trade-off between risk and return. This will also help those who are landless or have less land Framers can exploit the better risk-return trade-off by investing in subsidiary occupations.

Most farmers in this district operate under one or the other type of stress including sodicity-salinity, water logging in some area and water shortage in all blocks. The niches available under such situation are smaller compared to other district. There is need to exploit technologies evolved for dry land agriculture. Conservation agriculture will play a very positive role in the long run. Zero tillage and bed planting need to be exploited to the advantage of farmers.

#### **VISION STATEMENT**

**Improving the livelihood of rural household by rebalancing agriculture through conservation agriculture and a diversified farming system having market potential. The measures for increasing efficiency of critical inputs mainly water to be adopted for bridging yield gaps without impairing natural resources.**

From the general discussion and PRA exercises conducted in the selected villages it

was undoubtedly clear that besides the technical flaws it is the inability of the resource poor farmers to invest in productivity improvements in crops and allied enterprises which is hindering the agricultural development and the farmers progress. In Jhajjar district for nearly 55% of the farmers having less than one ha of average land holding and far greater percentage of non crop farmers who are having no land, it is quite unthinkable to invest in the productivity improvement in their land ,animals and other enterprises. Investing in farmers' ability to grow more and grow better products for its consumption as well as for its agri business will help farmer to be prosperous.

This problem can be overcome by providing the necessary site cum crop enterprises specific crucial inputs and technologies free of cost or at the most at minimum cost so as to enable them (resource poor farmers) to invest in productivity enhancement in addition to the technical knowledge application. This will result into increased production for the nation and increased productivity and income for the farmers. The maximum number of trials, demonstrations and other inputs suggested to be provided to the farmers under the projects of the plan be necessarily provided to these sections of population where ever applicable.

The proposed activities, infra structures, planning of inputs, equipments, demonstrations, crop diversification and other project proposals are aimed towards fulfillment of the vision within a span of ten to fifteen years.

To attain the objective of increased income and employment on sustainable basis from majority of marginal and small farms, the scientific adoption of multi enterprises model is emerged as the best option out of the plan exercise. Multi enterprise has



tremendous scope for adoption to sustain livelihood and up-gradation of natural resources.

The district enjoy the advantages of efficient system of rural transport and road network to more rigorously promoting commercial big dairies , mushroom , poultry, fish farming , sheep- goat and pig farming. The district also enjoys the location wise advantage of being near to the large metropolis of Delhi which offers vast consumer market for the agri- produces discussed herein. This kind of expansion will also be beneficial for improving soil health through increased availability of organic manure. Here, it is also to be understood that the less land using enterprises mentioned above are not the only solution, cutting cost and increasing the productivity is the best way to sustain the growth in agriculture.

The natural resource management also deserves immediate attention of farmers as well as other concerned. It is essential that the factor productivity be improved through adoption of RCTs, INM, IPM, better seeds and reversing the deteriorating soil health, compensating nutrient deficiency, replenishing the ground water table and managing soil salinity and water logging conditions. The saline soil reclamation and water logged soil reclamation with rain water harvesting projects will give fillip to the agricultural development of today and coming days. The special projects of increasing milk yield and stock will definitely add to the farmers income and milk availability.

**Constraints for backwardness and issues impeding growth**

The major obstacles affecting the progress and productivity of the district as identified by participatory approach are as follows.

- ▶ Depleting soil fertility
  - Soils low in organic carbon
  - Low use of organic manure
  - Burning of crop residue
- Improper usage of chemicals and fertilizers
- ▶ Declining water table and about 70% available water is brackish.
- ▶ Salinity and alkalinity problems
- ▶ Non-judicious use of fertilizers and chemicals
- ▶ Stagnation in Yields
- ▶ Rising costs and diminishing economic returns
- ▶ Rising problems of insect-pest and disease complex.
- ▶ Decline in factor productivity
- ▶ Inadequate availability of quality seeds (including vegetables)
- ▶ Inadequate availability of quality fodder
- ▶ Low productivity and poor management in large and small ruminants
- ▶ Problems in agro-forestry
- ▶ Fragmented small holdings
- ▶ Narrow economic base
- ▶ Slow pace of diversification
- ▶ Farmers inability to invest
- ▶ Personal and social outlook
- ▶ Lack of orientation in development department
- ▶ Lack of farm finance and marketing awareness.

### **Priority setting for the district**

#### **Priority Setting**

- Judicious use of problematic water – Micro irrigation & water harvesting.
- Crop diversification through horticulture

- Popularizing RCT through seed grading, laser leveling, zero tillage, bed planting summer moong cultivation and water harvesting.
- Promotion of small & large dairies.
- Enhancement of allied enterprises in agriculture like bee keeping, mushroom, dairy, poultry, piggery, fishery etc.
- Women empowerment by way of knowledge upgradation and self employment in various vocations like fabric enrichment (Tie & Dye), preservation and processing, community nutrition & hygiene etc.
- Integrated Nutrient Management
- Integrated pest management
- Marketing as a business for the rural unemployed youths.

## **CHAPTER III**

### **SWOT Analysis of the District**

This is modern management tool to analyze the strength, weaknesses, opportunities and threats of an organization/institute/centre in order to make that organization more productive and efficient.

#### **Strengths**

- Good transport facilities through rail and road
- Assured input availability net work.
- Financial help through banks and cooperatives available
- Mechanized farming gaining importance
- Adequate extension services
- Good communication facilities in villages
- Good linkages and synergy between university KVK and other district developmental agencies.

#### **Weaknesses**

- Declining water table and non availability of good water of irrigation purposes
- Problem of salinity and sodicity in areas of poor underground water quality
- Decreasing organic carbon
- Poor underground water quality in almost of the Blocks
- Increase in incidence of pests and diseases
- Injudicious use of pesticides

- Inadequate fodder production
- Poor management of organic waste.
- Labour availability scarce and costly
- Poor feeding management of livestock
- Quality concern of farm inputs

**Opportunities:**

- Suitable agro climatic conditions for diversification through horticulture with micro irrigation.
- Mechanization to solve the problem of labour
- Scope of amelioration of salt affected soils
- Scope for recycling of organic waste and improvement in soil health
- Scope for diversification in favour of dairy based farming systems
- Creation of subsidiary occupation to solve the problem of unemployment
- Skill and knowledge up gradation through vocational training
- Improving information and communication technology (ICT) for real time extension
- Establishment of commodity based and /or technology based farmers association
- Improving the linkages and synergies with private sector, NGOs and other public sector organizations
- Multidisciplinary and farmers participatory approach to find solution for site specific problem/issues
- Creation of network of custom hire services

- Processed food and milk products to support retail marketing
- State designated certifying agencies for specific food items like organic products
- Women empowerment by way of fabric enrichment.

**Threats:**

- Non availability of good quality water
- Problem of salinity and sodicity
- Disenchantment among young farmers towards agriculture as an occupation
- Lack of incentives towards dairying and subsidiary occupations
- Breeding problems in milch animals associated with mineral deficiencies
- Higher calf mortality
- Decreasing availability of green fodder
- Unscientific and un-decomposed farm yard manure and organic farm waste management
- Shifting of productive land to non agriculture use

In order to capitalize on the opportunities and to convert weaknesses into opportunities we have to visualize an alternate agricultural scenario from present to twenty years hence. In this endeavor, an in depth analysis of strength, weakness, opportunity and threats (SWOT) was undertaken to place the extension and technology dissemination efforts in perspective so that success can be achieved in pursuit of serving farming community.

## **A) Management of Agricultural Crops**

### **Strengths:-**

- i) All basic factors required for successful cultivation of major cereals are available in the district.
- ii) The proximity to the huge market of National Capital of Delhi with well established connectivity of roads and railway track.
- iii) Receptive farmers willing to adopt improved farm technologies.

### **Weaknesses**

- i) Inadequate soils health management practices.
- ii) Critical technological gaps in specific areas of crop production viz. seed treatment, balance fertilization and insect pest and disease management.
- iii) Low adoption level of FYM, green manuring and vermi-composting and crop/farm residue management.
- iv) Lesser availability of quality seeds (especially hybrid seeds) of various crops.
- v) Lack of proper knowledge and indifferent attitude of farmers towards crucial farm/crop management practices/operations.
- vi) No disincentive for excessive water and electricity use.

### **Opportunities**

- i) Judicious use of water with micro irrigation.
- ii) Agriculture allied enterprises for higher income and employment generations.
- iii) Vast opportunities prevail for profitable diversification of existing cropping pattern within crops and with non crop husbandry with scientific integration as per market demand.
- iv) Technologies available for sustaining natural resources health with increased efficiency of land, water and human resource.
- v) Bridging yield gaps between average yield and attainable (successful farmer's yield) and FLDs yield
- vi) Established and up coming marketing, agro-processing and ware housing/go down facilities in and around the district.

### **Threats**

- i) Lack of availability of irrigation water.

- ii) Degrading soil fertility especially with declining status of potash and micronutrients.
- iii) Rising salinity and water table in Bahadurgarh & Beri blocks.
- iv) Increasing farmers' inability to invest in agricultural production system (majority being marginal and small land holders and resource poor)
- v) Rising problem of insect-pest and disease complex.
- vi) Weeds and insects thriving on common lands and government lands.

## **B) Management of Horticulture Production**

### **Strengths**

- i) Favourable climate for production of different quality fruits (especially ber, guava, Aonla) and vegetable crops.
- ii) The proximity to the huge market of National Capital of Delhi with road and rail connectivity.
- iii) Long tradition of cultivating specific vegetables.

### **Weaknesses**

- i) Poor quality saline water
- ii) Lesser availability of quality seeds and planting material in time.
- iii) Non-availability of sufficient labour especially at crucial stages.
- iv) Lack of proper knowledge of farmers of modern production, post harvest handling and marketing practices.
- v) High transportation costs.

### **Opportunities**

- i) Proximity to National Capital offers excellent marketing opportunities to the national and international markets.
- ii) Established and up coming cold storage and processing units in and around the district.
- iii) Increasing urbanization and changing food habits with preferences towards fruits and vegetables.

### **Threats**

- i) Inefficient and less transparent marketing with monopoly of traders and multiple level of intermediaries.



- ii) Weaker post harvest management and modern marketing facilities like cold storages/chains, pre-cooling and waxing centers.
- iii) Wide fluctuation in prices
- iv) Reducing arable area (main vegetable growing area of B.garh and adjoining area of Delhi NCT belt is fast turning into residential and commercial purpose)

### **C) Management of Natural Resources**

#### **Strengths**

- i) Rich bio-diversity
- ii) Wide variety of agro climatic conditions availability with option to raise varieties of crops, plants and animals.
- iii) Climate and soils suitable for growing quality crops.

#### **Weaknesses**

- i) More than 2/3 available water unfit for irrigation.
- ii) Degradation of soil fertility due to continuous cropping without adequate soil health management practices.
- iii) Depleting as well as rising water tables with salinity and water logging problem in Bahadurgarh & Beri blocks.
- iv) Infestation of weeds, insect-pest and disease complex.
- v) Lack of integrated approach on NRM, INM and IPM by the farmers.

#### **Opportunities**

- i) Unexplored bio-diversity with respect to vegetables and other crops.
- ii) Bio mars available from live stock, crop and farm residue for maintaining proper soil health.
- iii) RCTs available for increased yields and productivity with enhanced efficiency of natural resources and other inputs.
- iv) Immense scope exists to tackle resources degradation through integrated approaches of NRM, INM & IPM.

#### **Threats**

- i) Injudicious and indiscriminate usage of agro-chemicals, polluting ground aquifers.
- ii) Inadequate availability of Irrigation water leading to alarming decline of water

table, soil salinity and water logging in Beri & B.Garh blocks the district.

- iii) Lack of proper soil and water testing (micro-nutrients and ground water quality) facilities in the district.
- iv) General ignorance, casual approach towards degrading soil fertility and depleting water table.

#### **D) Management of Animal Husbandry**

##### **Strengths**

- i) Predominant rearing of world fame murreh buffalo.
- ii) Traditional expertise in cattle rearing with almost every farm house holds possessing milch animals in varying numbers.
- iii) Presence of viable milk marketing in Delhi NCT network through co-operative societies, private agencies and individual milk traders.
- iv) Ample marketing avenues of animal based products and by products in and around the district major being the National capital of Delhi.
- v) Well established network of Government veterinary, health and A.I. facility with wide coverage.
- vi) Government backed disease management and breed up-gradation services.
- vii) Sheep, goat and pig rearing a popular enterprise among landless and poor sections of society.

##### **Weakness**

- i) High mortality and poor growth in calves.
- ii) Infertility and delayed calving
- iii) Repeat breeding and long calving interval
- iv) Low milk yield in buffalo and cows.
- v) Lack of proper management and feeding practices.
- vi) Low availability of quality fodder production
- vii) High costs of feed, medicines/vaccines and chicks
- viii) Wide fluctuations in selling prices of eggs and broilers.

##### **Opportunity**

- i) Bridging yield gaps

- ii) Growing demand for milk and other animal based products offers ready markets with higher returns and additional employment generation.
- iii) Upcoming processing and exporting firms to provide additional fillip to various animal based allied activities.
- iv) Tremendous scope to raise on farm employment, income and increased availability of organic manure by substituting area in favour of fodder crops and there by raising dairy on same area.

### **Threats**

- i) Increasing urbanization and high population pressure on land leads to less acreage under fodder production.
- ii) Disease outbreak (even in far off places) causes the panic in consumers and producers suffer on account of crash in markets especially of poultry.
- iii) Poultry industry growth dependent on availability of maize and soya and their competitive prices as feed cost is nearly 70% of total cost with 80% of raw material comprises of these two crops.
- iv) Shrinking pasture lands
- v) Maintaining traditional sheep and goat rearing methods
- vi) Occurrence of diseases in sheep and goat

### **E) Management of Fisheries**

#### **Strengths**

- i) Vast unfulfilled demand for fish with easy market accessibility
- ii) Technical, financial and marketing assistance by Government agencies for promotion of this sector.
- iii) Greater people participation and generation of employment opportunities especially for landless and marginal farmers.

#### **Weakness**

- i) Weak infrastructure for fish seed production and genetic up gradation.
- ii) Lack of farmer oriented activities e.g. trainings, demonstrations, exposure visits, awareness camps etc. to update farmers' fish production and management practices.
- iii) Inadequate quality seed availability of high yielding fresh water prawn.
- iv) Poor maintenance of common or panchayat pond.

### **Opportunity**

- i) Immense scope for fish seed (fingerlings) production to cater the needs of fish farmers of the state
- ii) Ample scope for mobilizing untapped water resources such as water logged area, saline water and soil for aquaculture.
- iii) High cattle population releasing organic manures in pounds help in growth of natural food for fish.
- iv) Greater opportunities for diversification of traditional crop fish culture and agriculture to culture of high value fish species such as magur, soil, singhora, ornamental fish and prawn.
- v) Provision of financial assistance for popularizing integrated fish farming with agriculture, horticulture, dairing, poultry, piggery and duckery.

### **Threats**

- i) High mortality in juvenile and adult fish
- ii) Absence of any reputed centre/source of fish feed mill, fisheries management institute.
- iii) Lack of post harvest management practices by farmers
- iv) Poor facilities for soil and water sample testing, disease diagnosis and post harvest infrastructures.
- v) Recent amendments in Panchayat Act related to reducing lease period of 10 years to 3 years (as no long term investment of worth would be feasible for lease holder).

## **CHAPTER-IV**

### **Development of agriculture sector**

#### **4.1 Introduction**

Though the shift in the land use of agriculture sector to non agriculture sector has been increased in district Jhajjar since its inception in the year 1997, yet agriculture is still the main occupation of the large number of the farmers in the district. The basic problems for the farmers is that nearly 2/3 of the area is unirrigated and having various problems like soil salinity, alkalinity and water logging. Nearly 75% of the available water is brackish and not fit for the irrigation purposes. The main thrust of the district is to increase the profitability of the farmers by way of sustainable agriculture, and the judicious use of natural scarce resources like water. It is the need of the hour to go for the overall development of the farmers, rural youths and rural ladies by updating their knowledge level through various extension activities. The main thrust of this district is to give special emphasis on the women empowerment and the establishment of small & large dairies to meet out the growing demands of the processed foods, milk & milk products and other items for the large masses in National Capital Region. This district has wide range of cropping systems like Rice - wheat, Cotton - wheat, Bajra - wheat, sorghum - wheat, arhar - wheat, fallow - mustard. The cropping intensity is 151%.

#### **4.2 Land use**

Total geographical area of the district is 1, 91,000 ha. Net area under cultivation of different crops is 161000. The percentage of net area sown to total geographical area is 84.29%. Rice, bajra, sorghum, arhar, are the main kharif crops and wheat, mustard are the main rabi crops grown in the district. The area under different agricultural crops is given in Table 2.

**Table 2 : Present status of different crops in district Jhajjar (Year 2006-07)**

Sr. No.	Crop	Area (ha)	Production (tones)	Productivity (quintal/ha)
1.	Rice	17000	28900	17.0
2.	Jowar	25400	-	-
3.	Bajra	26800	35108	13.1
4.	Pulses	7200	7400	-
5.	Wheat	85100	328826	38.64
6	Rapeseed & mustard	56400	48000	8.54

#### **4.3 Soil and Water Resources Management.**

A sizeable portion of land in the district especially in Beri & Bahadurgarh blocks is affected by salinity and/ or alkalinity along with the problem of water logging. As far as ground water resource is concerned, the good quality water is 25 per cent and marginal water is 7 percent in the district rest being sodic, saline and saline sodic. District Jhajjar is having nearly 68 percent of its area under irrigation by both the canal as well as the tube wells. The area under tube well irrigation is increasing at a much faster pace than the increase in area by canals over past years, however, there remains the problems of irregular and insufficient water supply by canals and erratic power supply to the tube wells even at crucial stages of crop production. The soil more than 2/3 of the soil is deficit in major nutrient like N,P,K and minor nutrients also.

In C-DAP. Special projects on soil health maintenance and ground water recharging are proposed. To tackle the problem of non-judicious use of fertilizer-chemicals (ignoring the desired ratio and application of needed micro-nutrients) site and crop specific INM

demonstration or proposed along with educating farmers on RCTs and other related issues.

Special emphasis has been given towards Panchayat Land reclamation and water harvesting on Panchayat/ common land for the benefit of farming community as a whole.

#### **4.4 Major crops and varieties in the district.**

Agro-climatically a number of crops can be grown in Jhajjar district but major portion of cultivable land is occupied by wheat, mustard, bajra, sorghum, paddy, arhar. The significant area shift towards these crops reflects their respective profitability and ease with which the crops can be cultivated as per land suitability. Some other crops which can be equally profitable and easily adjusted in existing cropping pattern are being ignored by farmers on account of lack of proper knowledge, risk, uncertainty and poor yields. These existing crops and varieties are mostly been cultivated without proper care for suitable crop-rotations and other organic and non-cash practices which help in resource conservation, control of diseases, insect-pest and weeds, lowering cost of cultivation and stabilizing yields. Farmers are also sowing some non-descript varieties and varieties not recommended/suited to this region which is certainly a factor for lower productivity. All these issues are proposed to be tackled in the plan through conducting trainings, demonstrations, and other extension activities mentioned under recommended interventions for the district.

In rabi season, wheat is dominating crop having 50% area whereas raya occupies 15% area. PBW-343, WH-542, WH-711 and PBW-502 are the important wheat varieties covering major area under timely sown conditions while Raj- 3765 is primly grown

under late conditions. In raya, RH-30 occupies 85% area both under irrigated and rain fed conditions. During kharif season, paddy, bajra, arhar and sorghum are grown on 10, 17,8, and 16 per cent area, respectively whereas sugarcane occupies 1% area. The varieties grown in the district are given in Table 4.

**Table 4: Crops & major varieties of the district.**

<b>Crops</b>	<b>Varieties</b>
Wheat	PBW-343, WH-711, PBW-502, Raj-3765, C-306
Paddy	Pusa-1121, Sarbati, Pusa-1, HBC-19, CSR-30, Pusa 10
Jowar	Local
Arhar	Manak, Paras
Raya	R.H. 30, T-59, (RH-8812)
Bajra	Hybrids
Berseem	Muskawi HFB-600

#### **4.5 Input management**

Water is the most critical input in district Jhajjar. One of the other most critical inputs is quality seed. Another aspect is of seed availability in the district which is badly affected by infrastructural non-availability especially of any seed farm at block/ district level. The government agencies assure the supply of different quality seeds during each season but the demand for quality seed always remain more than its supply especially through Government agencies. The private sector should be welcomed in this area to ensure availability of quality seed and increased seed replacement rate. The seed replacement rate is very low in different crops namely 11% in wheat, 9% in paddy may be attained upto a desired level of 33%. For the availability of good quality seed and



its enhanced replacement can be ensured by involving farmers in seed production process on a large scale with active help from public and private sector. Special projects for production of quality seed of wheat is being submitted in the plan.

The major input used in different crops is seed, fertilizers and pesticides.

#### 4.5.1 Seed

The area under bajra, rice, sorghum, wheat and mustard constitutes 16,10, 15, 50 and 33 percent of total cultivable area respectively. At present the seed replacement rate (SRR) of wheat and rice is 10 and 12%, respectively. Thus, the scope of SRR is ambient in future to enhance the productivity of rice and wheat in the district.

**Table 5 : Planning of Agriculture Inputs in the District – Seed**

Sr. No.	Name of the Crop	Area under Crop (ha)	Present SRR %
1	Berseem	5000	5.0
2	Jowar	12000	17.0
3	Wheat	140000	13.5
4	Paddy	68000	13.0
5	Arahr	10000	16.0
6	Raya	10000	50.0
7	Bajra	9000	60.0

#### 4.5.2 Fertilizers

Fertilizer is another crucial input for the cultivation of present day regime of high yielding varieties/crop production. There is an effective distribution system for fertilizers in the district right up to the village level. The farmers are well aware but not educated

enough about the balanced fertilizer-nutrient usage in different crops. They are concentrating mainly on application of nitrogenous, phosphatic and zinc fertilizers where as the deficiency of potash and micro-nutrients is affecting the yield and productivity of crops in most parts of the district. There is one soil testing lab in the district where soil samples are tested for primary nutrient only. There should be the facility of testing micro-nutrients and water quality also. Farmers also need awareness regarding usage of potash and micronutrients for enhanced productivity with quality without affecting soil health. For facilitating potassic and other micro-nutrient application the supply and distribution of these inputs is to be ensured in time. Location specific integrated nutrient management, bio fertilizers, FYM and vermi-composting, farm residues management etc. are to be popularised for wider adoption under the plan.

**Table 6: Present status and projections of fertilizers for XI Plan**

Fertilizers	Used in 2006-07 (tones)	Projections in XI Plan (tones)					Total (tones)
		2007-08	2008-09	2009-10	2010-11	2011-12	
Urea	35200	39000	43000	46000	49000	52000	229000
DAP	10300	13000	15500	18000	20000	22000	88500
MOP	60	400	700	1000	1200	1400	4700
SSP	1400	1700	2000	2200	2500	2700	11100
Total	46960	54100	61200	67200	72700	78100	333300

#### **4.5.3 Pesticides**

The crop diseases, pests and weeds are other major problems in realizing optimum yield for all major crops in the district. The scrutiny of insect- pest, diseases and weed control measures being adopted by the farmers reveal gross negligence on part of

farmers. The improper management of these control measures often results in to increased cost of cultivation without corresponding increase in yield and quality, increased resistance and soil and water contaminations. The farmers are depending more and more on chemical control with higher doses (or more concentrated form) of chemicals. Urgent steps are required to be taken for promoting integrated measures for control of insect/pest, disease and weeds control which are in tune with sustainability and profitability without enhancing cost. To achieve the recommended rate of seed replacement, number of varietal demonstrations (of suitable/preferable varieties/crops) is proposed.

The quantity of different pesticides (insecticides, fungicides and herbicides) used by farmers in different crops were 180 tonnes during the year 2006-07.

**Table 6 : Present status and projection of pesticides for XI Plan**

Pesticides Blocks	Used in 2006-07 (tones)	Pesticides in XI Plan (tones)				
		2007-08	2008-09	2009-10	2010-11	2011-12
Jhajjar	150.9	131.8	130.0	140.0	145	150
Beri	190.0	165.0	160.0	160.0	160.0	160.0
Salhawas	210.0	180.0	180.0	170.0	170.0	170.0
Matanhail	170.0	165.0	140.0	150.0	160.0	170.0
B.garh	180.0	190.0	200	205	210	220

#### **4.6 Farm Mechanization/Farm equipment**

##### **Farm Mechanization**

Farm mechanization has been helpful in improving productivity of different crops, time saving, reducing drudgery, timely farm operations, resource conservation and protection

from 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. Seed grader, laser leveler, bed planter, straw reaper and zero tillage machine needs large scale adoption

At present, there are 10945 tractors, 66 zero till seed cum fertilizer drills, 8621 threshers, 397 combine harvester in the district. There is need to create more awareness among farmers for proper use of farm machineries for higher efficiency, saving human and energy resources etc

. To encourage farmers on quality seed production and ensured availability near to them special projects are being submitted under this plan. Other extension activities like trainings are also proposed to educate farmers for their capacity building in producing quality seeds.

For effective management of other crucial inputs of fertilizer-nutrients and agro-chemicals for increased yields and productivity while maintaining natural resource's health, programmes for educating framers, planning for soil testing , IPM and INM demonstrations and farmers field schools are proposed in the plan.

#### **4.7 Special projects/programmes on going in the district**

The following special projects are on going in the district.

a) Agriculture Technology Management Agency (ATMA) programme is being

implemented since 2007-08 to strengthen the present extension system.

- b) A small scheme viz. front line demonstration on other than oilseed & pulses is being implemented through ICAR in Krishi Vigyan Kendra Jhajjar.
- c) A small scheme viz front line demonstration on oilseed and pulses is being implemented through ICAR in Krishi Vigyan Kendra Jhajjar.

#### **4.8 Constraints analysis and Recommended Interventions for Development of Agriculture sector**

The yield gap analysis of major crops and enterprises was completed by KVK resource team by identifying different farming situations under which a crop or an enterprise is being grown under each AES in the district. The study of the existing practices was followed by identifying critical gaps by comparing the existing practices being adopted by the farmers with recommended practices. The factors and/ or constraints leading to the **gaps** were arrived at before finalizing the strategies along with approaches and methodology to overcome the constraints and bridging the gaps. Thereafter the performance indicators and sustainability output are indicated to ensure time bound action and impact assessment. Afterwards the sustainability and gap analysis issues were sorted out in a **log frame summary** indicating proposed mode of action, collaborations/targets along with the costs involved in addressing the issues critical for increasing productivity with sustainability.

### Sustainability issues and gap analysis of productivity of different crops and resources

Sr. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
<i>I</i>	<i>Paddy</i>					
i	<b>Low adoption of seed treatment</b>	Less awareness, poor management, no proper sowing schedule	To popularize practice of seed treatment for maintaining crop health.	Educating and Motivating farmers on its importance and adoption through demonstrations and trainings.	Entire district with no exception in seed born diseases and termite affected areas.	Productivity growth on sustainable basis.
ii	<b>Low plant density</b>	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. Similarly 5% growth in area in direct seeded Basmati rice	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
iii	<b>Poor adoption of Potassic fertilizers application</b>	Low awareness regarding its contribution to yield.	Awareness campaign regarding benefits of K use on yield in paddy be organised	Demonstrations and field days on application of K in paddy at farmers field be organized.	Ten percent growth in area under potassic fertilizer use every year.	Improvement in yield and quality of produce.
iv	<b>Non adoption of IPM practices</b>	Low awareness, Excessive & indiscriminate use of chemicals	Popularization of judicious use of chemicals and adoption of precautionary measures to control insect pests.	Farmers field schools, campaigns .	Ten percent growth in area under IPM every year.	Improvement in yield on sustainable basis.
v	<b>Poor water management</b>	Poor quality waters, flooded through out the crop season	Safe and judicious use of poor and good quality waters.	Training and demonstrations on proper water management	4 % growth in area under proper water management.	Increase in water use efficiency.

<b>Sr. No.</b>	<b>Gap</b>	<b>Factors/constraints leading to gaps</b>	<b>Strategies</b>	<b>Approach and methodology</b>	<b>Performance indicators</b>	<b>Sustainability outputs</b>
<b>vi</b>	<b>Non availability of Basmati hybrids</b>	Less number of hybrids in Basmati group, lodging in rice hybrids	Increase area under hybrids in basmati 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
<b>vii</b>	<b>Labour intensive crop/ Low mechanisation.</b>	Less availability of labour, high cost of paddy transplanter	Popularise use of paddy transplanter and direct seeding of paddy	Training and demonstrations on paddy transplanter	5 percent growth in area under paddy transplanter and direct seeding paddy every year.	Reduction in dependency on labour.
<b>viii</b>	<b>Un leveled field</b>	Lack of proper knowledge regarding need and importance of leveling and high cost of laser leveler	Introduction and popularization of laser leveler	Demonstration and exposure visits	Ten percent growth in area under laser leveler use every year.	Increase in water use efficiency and improvement in yield
<b>B</b>	<b>Wheat</b>					
<b>I</b>	<b>Lesser adoption of seed treatment</b>	Termites, fungal diseases like loose smut, flag smut and Karnal bunt	To popularize practice of seed treatment for maintaining crop health.	Educating and Motivating farmers on its importance and adoption through demonstrations and trainings.	Entire district with no exception in seed born diseases and termite affected areas.	Productivity growth on sustainable basis.

Sr. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
ii	<b>Poor yield in paddy-wheat rotation due to delayed sowing</b>	Delayed harvesting of Basmati rice, excess/untimely rains	Zero tillage, short duration varieties of rice, reduced duration of Basmati rice, direct seeding of Basmati.	<p>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.</p> <p>The technology meet to be further developed for other cropping systems and other crops.</p> <p>Testing of novel seeders in preparation for its commercialization e.g. Happy seeders.</p>	50% area upto 15 <sup>th</sup> Nov. areas to be covered include whole coarse rice and 50% Basmati rice.	<p>Zero tillage will help :</p> <p>a) Improving soil health including soil biology</p> <p>b) Improved environment</p> <p>c) Less water use</p> <p>d) More productivity</p> <p>e) Less problem of <i>P. minor</i> &amp; decreased use of herbicides</p> <p>f) Reduced cost of cultivation</p> <p>g) Facilitates sowing under high soil moisture conditions</p>



Sr. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
iii	<b>Nutrient mining &amp; increased incidence of multiple nutrient deficiencies</b>	In RWCS, average N use ranges from 160-180 kg/ha and average P use is 57 kg/ha. Recommendation is 5:2:1 not 4:2:1	Introduce more organic manures, green manure, more residue retention on surface, use of site specific micro-nutrient, use of N in three splits and use of first split before 1 <sup>st</sup> 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 (B.Garh, Beri, Matanhail, and part of Jhajjar block )	The residue retention will help improving soil productivity, improved water permeability, decreased losses of nutrients

Sr. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
iv	<b>No variety to tolerate terminal heat</b>	No variety to tolerate terminal heat, short duration variety produces less yield	Survey and identify high temperature tolerant variety	Popularization of identified varieties.	80% area should be covered under such varieties.	Improvement in yield.
v	<b>High incidence of weeds</b>	<p><i>Phalaris minor</i> seriously affects wheat yields in rice-wheat cropping system.</p> <p>Complex weed flora seriously affects wheat yield in non-rice wheat cropping system.</p> <p><i>Phalaris</i> resistance will be come a major problem and needs immediate attention for ecological solution. We must delay or avoid resistance.</p>	<p>Improve the efficiency of existing herbicides.</p> <p>Introduce new herbicides.</p> <p>Capacity building for spraying techniques.</p> <p>Ecological approached including zero-tillage crop rotation.</p> <p>Monitoring of resistance build up.</p> <p>Germplasm management for competitive varieties</p>	<p>District level strategic plan for the management of <i>Phalaris minor</i> integrated. Capacity building of extension agencies and farmers for appropriate spraying techniques. On farm demonstrations of new herbicides</p>	Entire district Jhajjar	Anticipated economic benefits are increased profitability, increased yield and increased food security.
<b>C</b>	<b>Raya</b>					
i	<b>Non availability of frost resistant varieties</b>	Loss in yield due to frost in winter	Survey and identification of frost resistant varieties.	Popularization of identified varieties and frost escaping management practices.	Entire district may be covered.	Better utilization of resources.

Sr. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
ii	<b>Poor fertilizer management or no sulphur application &amp; no basal use of fertilizers</b>	Grown on marginal lands, fear of risk, No phosphatic & sulphur containing fertilizer application, no green manuring	Educating farmers on the importance of sulphur use and basal dose of fertilizers and its effects on yield enhancement.	Demonstration and field days.	20% growth in area every year.	Improvement in yield on sustainable basis.
iii	<b>Poor disease and insect management</b>	Low awareness, increased incidence of painted bug	Making farmer aware.	Trainings , demonstrations	10 % growth in area every year	Higher yield.
<b>E</b>	<b>Arhar</b>					
i	<b>High incidence of pod borer</b>	Problem in doing spray due to more height of plants	Adopt spray schedule to control pod borer	Training result & method demonstrations	10% growth in area under control of pod borer every year	Increased yield
ii	<b>Less use of phosphatic fertilizers &amp; bio- fertilizers</b>	Grown on marginal lands, farmers do not use fertilizers due to uncertainty of the crop	Causing awareness regarding the role of phosphatic and bio fertilizers in yield increase	Trainings, demonstrations, field day	20% growth in area every year	Increase in productivity
iii	<b>Non availability high yielding, short statured and short duration varieties</b>	Non availability of high yielding , short statured short duration variety ,Low yield, low income per unit area,	Use of bed planters for intercropping of maize and moong in arhar	Farmers participatory approach	10% growth in area under inter cropping every year	Multiple land use Increase in profitability

Sr. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
<b>F</b>	<b>Bajra</b>					
<b>i</b>	<b>Less dose of fertilizer application</b>	Fear of loss, lack of awareness & finance ,less productivity	Awareness regarding use of fertilizer on increase in crop yields	Trainings Demonstration, field days	20% growth in area under fert. Use every year	Increase in productivity
<b>ii</b>	<b>No proper weed management</b>	Lack of mechanization in weed control, no post emergence weedicide available,	Educating farmers on the use of chemicals for the control of weeds	-do-	10% growth in area every year	Increase in productivity
<b>iii</b>	<b>Intercropping</b>		Motivation of farmers to adopt intercropping of guar in bajra for higher return	Demonstrations, trainings, seminars	10% growth on area every year	Multiple land use
<b>G</b>	<b>Fodder crops</b>					
<b>i</b>	<b>Less use of fertilizers particularly phosphatic fertilizers</b>	Lack of awareness regarding fertilizer requirement of fodder crops like sorghum , barseem, oats and maize.	Educating farmers on effect of fodder produced without P fert. Application on yield and animals health	Farmers participatory approach	20% growth on area every year	Increase in yield, improvement in animals health
<b>ii</b>	<b>Non availability of improved variety and quality seed</b>	Non availability of high yielding varieties of sorghum and non availability of quality seeds	Multiplication of quality fodder seed of approved varieties	Individual farmers, concernd dept. and seed certification agency should produce and multiply quality seed	Per block 5 villages should be selected as fodder seed village	Increase in fodder yield, milk yield
<b>iii</b>	<b>High incidence of grass hopper`</b>	Lack of knowledge regarding grass hopper control measures	Campaign on control of grass proper on community basis at breeding places	Campaign	Entire district be covered	Higher quality fodder yield

**Closing the gaps for realizing the vision**

<b>Activity Output Matrix</b>				
<b>Activity/Crop/Commodity</b>	<b>Issues</b>	<b>Mode of Action</b>	<b>Collaborator/ Target</b>	<b>Cost</b>
<b>1. Water management (Depleting and rising water table)</b>	Deficit irrigation increase water use efficiency.	Deficit irrigation for 15 days in July or August will be tested for basmati rice.	KVKs & DDAs will jointly lay out demonstrations in ten hectares	Demonst. proposed
	Keeping 10 per cent area under basmati rice.	Economics of basmati rice in favour of farmers will be ensured through technological interventions and policy frame work.	Agricultural Economist at KVKs or group of KVKs and concerned agronomist will prepare the data sheet on the profitability on different groups of varieties. Incentives on quantity of water saved or enhanced water productivity will be suggested.	Survey and economic analysis proposed.
	Testing of high yielding basmati varieties	Varieties for traditional basmati for yield improvement. The price incentive of a multiple of 1.6 for traditional basmati and 0.6 for coarse rice compared to prevailing price of evolved basmati rice in the region	DDAs will demonstrate and KVKs will collect yield data on successful demonstrations	Varietal trials proposed

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	Salinity/sodicity stress mitigation at farmers' fields	Green manuring and gypsum use. Tolerant varieties.	Subsidy on gypsum (@ 75%) and its availability will be ensured. Tolerant varieties like CSR-30 will be evaluated with other candidate varieties.	Demonstration on green manuring and gypsum proposed in plan.
	Water logging and secondary salinization	Bio-drainage through tree plantation.	ASCO and DDAs will ensure the characterization of water logged areas and plantation of useful tree species.	Project on drainage is proposed.
	Water harvesting and recharging	Construction of water harvesting structures near catchment area of drain, panchayati/ shyamlat/ farmers land.	DDAs/concerned departments in consultation with KVKs	Project on water harvesting proposed.
	Watershed development in rainfed areas	Sprinkler/drip irrigation after creating facility of community ponds.	DDAs/concerned departments in consultation with KVKs	Project proposed.
	Utilization of brackish water.	Alternate/conjunctive use of water.	DDAs/concerned departments in consultation with KVKs	Demonstrations proposed.

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	Ground water testing for nitrate and sulphate contamination	Survey of marked sites for nitrate and sulphate contamination  Characterisation of nitrate and sulphate contaminated areas.	DDAs/KVKs will conduct survey and identify the areas of high nitrate and sulphate containing waters.	Survey for study of ground water quality proposed.
<b>2. Management of salinity &amp; alkalinity</b>	<p>Long term sustainability of different crops will depend on management of salinity and alkalinity in the system as a whole rather than commodity crops</p> <p>Avoid irrigation with brackish water in drought years because it leads to secondary salinity; wherever available make conjunctive use of water. Tolerance of current and improved varieties to salinity and sodicity needs further investigations.</p> <p>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</p>	<p>Rice-wheat, bajra-wheat, pulses-wheat, cotton-wheat will be studied for salinity/alkalinity buildup from life saving irrigation given in the kharif season.</p> <p>The yield of Rabi crops will be recorded for farms where farmers have given variable number of irrigation with brackish water in kharif season.</p> <p>The reclamation of sodic soils and waters through gypsum will be done.</p>	<p>Deptt. Of Agriculture/ KVK</p> <p>Survey and soil sampling will be done by DDA and KVK. Demonstrations will be laid out by DDA in collaboration with KVK</p> <p>Demonstrations will be laid out by DDA in collaboration with KVK and supply of gypsum may be ensured by DDAs</p>	<p>Survey proposed.</p> <p>Demonstrations proposed in plan.</p> <p>Demonstrations proposed in plan.</p>

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
<b>3. RCTs</b>				
<b>i) Zero Tillage</b>	<p>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.</p> <ul style="list-style-type: none"> <li>❖ Assemble district level data and use them for bio-physical and socio-economic characterization using GIS.</li> <li>❖ Evaluate the concept for ecological intensification of cereal systems.</li> <li>❖ Improve agronomic efficiency of nutrients.</li> <li>❖ Improve recovery efficiency of nitrogen</li> <li>❖ Improve crop water productivity and irrigation water productivity for a system as a whole</li> </ul>	<p>Monitoring of farms where farmers have practiced zero-tillage for more than five years.</p> <p>(10 ha)</p> <p>KVKs &amp; Scientist from main campus/research station.</p> <p>KVKs &amp; Scientist from main campus/research station.</p>	<p>Demonstration and long term trials will be laid out by KVKs at farmer's field.</p> <p>Deptt. Of Agri.will ensure visit of farmers at demonstration sites.</p> <p>KVKs &amp; Deptt. Of Agri.</p>	<p>Demonstrations proposed.</p> <p>Exposure visit proposed.</p>



Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	<ul style="list-style-type: none"> <li>❖ Improve biological activity in the soil.</li> <li>❖ Reduce energy budget for rice-wheat cropping system.</li> </ul> <p>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)</p>			
<b>ii) Bed Planting</b>	<ul style="list-style-type: none"> <li>❖ Technical and financial constraints will be studied to arrive at impediments that stand in the way of adoption of bed planting.</li> <li>❖ New scientific knowledge of its success in water log situation will be evaluated.</li> <li>❖ System level integration through multiple land use will be evaluated and accelerated to get full benefit from this technology.</li> <li>❖ This system will follow different pathways for system-level changes leading to ecological intensification through inter-cropping.</li> </ul>	Dual purpose virtues of technology will be demonstrated in inter-cropping based system approach through University and State department.(10ha)	DDAs	Demonstration proposed.

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	<ul style="list-style-type: none"> <li>❖ Will target, high yields, high profits and high resource efficiency (water, energy, nutrients, labour through improved management solutions).</li> <li>❖ Permanent raised bed system would be evaluated to arrest rate of ground water decline due to less use of ground water.</li> </ul> <p>Switching from rice-wheat cropping system to multiple land use system with sugarcane, vegetables, maize will be evaluated for their potential for less use of ground water.</p>			
<b>iii) Direct Seeding of rice</b>	<p>Direct seeded rice, direct seeding by zero-tillage machine, direct seeding by drum seeder under wet situation. Green manuring immediately after wheat harvest, brown manuring by retaining residues and then seeding with machine, use of hybrids under direct seeded rice, decrease in maturity period, saving in water. Direct seeding will alleviate labour problem, will save water. The purpose of this sub-programme is</p>	<p>KVKs will lay out demonstrations on basmati rice. Demonstrations include direct seeding dry seeded and direct seeding wet seeded. Dry seeding will be done by machine while wet seeding will be done by drum. (4 ha)</p>	<p>DDAs</p>	<p>Demonstrations proposed.</p>

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	to develop strengthen based and farmers driven direct seeded technology in basmati rice. The window between wheat harvest and rice seeding will be utilize for green manuring and then retaining the residue on the surface.			
<b>(iv) Alternate wetting and drying</b>	1. Effect of switching from fluid to alternate wetting and drying method of irrigation for crop establishment on reduction in water use without effecting the productivity will be accessed.	DDAs will lay out demonstrations on basmati rice in each block. DDAs will also record data on water saving. The yield penalty if any will be recorded while recording data on yield.	DDAs	Demonstrations proposed.
<b>(v) Laser –Leveling</b>	Laser land leveling for water saving, land saving and improve yields in rice, wheat and sugarcane.	DDAs will organize and monitor the distribution of laser leveler specially 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 DDA	DDAs	Project proposed.  Demonstrations proposed.
<b>(vi) Green manuring</b>	The improvement in the productivity of crops  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  Ten per cent area will be covered.	Project proposed

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
<b>(vii) Summer moong</b>	<p>Introduction of summer moong in the rice-wheat cropping system to discourage summer rice.</p> <p>To ensure timely transplanting of rice and to sustain the productivity of summer moong, the sowing should be preferred up to 20<sup>th</sup> April.</p>	<p>DDAs and KVKs</p> <p>DDAs will ensure the acceleration of the technology and timely availability of treated seed. The suitability of variety to be ensured through KVKs.</p> <p>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.</p>	DDAs/ KVKs	<p>Project proposed.</p> <p>Survey proposed.</p>
<b>4. Seed production</b>	1. Seed planning	<ol style="list-style-type: none"> <li>1. Participatory selection of improved variety at farmers field.</li> <li>2. motivating. farmers to produce the seed of best variety</li> <li>3. Surveying the yield performance of varieties/hybrids in each crop.</li> <li>4. Presenting data of best performed variety.</li> <li>5. Deleting varieties/hybrids with low yields in any current season.</li> <li>6. Mandatory testing of new variety hybrids through KVK's.</li> </ol>	<p>DDA's for serial no. 1, 2, and 5</p> <p>KVK's for 3, 4 and 6</p> <p>Data for all activities will be presented in the officers workshop</p>	<p>Project proposed.</p> <p>Monitoring , survey proposed.</p>

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	2. Best quality seed	Seed production at farmers' field with farmers participatory approach.	DDA	Project proposed.
	3. Seed treatment	<ol style="list-style-type: none"> <li>1. Participatory selection of improved variety at farmers field.</li> <li>2. Motivating farmers to produce the seed of best variety</li> <li>3. Surveying the yield performance of varieties/hybrids in each crop.</li> <li>4. Presenting data of best performed variety.</li> <li>5. Deleting varieties/hybrids with low yields in any current season.</li> <li>6. Mandatory testing of new variety hybrids through KVK's.</li> </ol>	DDA's for serial no. 1, 2, and 5 KVK's for 3, 4 and 6 Data for all activities will be presented in the officers workshop	Project proposed. Monitoring proposed

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
<p><b>Site specific nutrient management</b></p>	<p>Number of split application and timing of top dress N with reference to irrigation</p>	<p>The project will identify, test and promote intervention for the sustainable rice-wheat cropping system through site specific nutrient management.</p> <p>Fertilizer recommendation will be based on the principles of SSNM. SSNM will include yield gap analysis, guidelines for regional protocol.</p>		<p>20 lacs for strengthening one lab and out sourcing sample analysis from public/private sectors.</p> <p>Survey of doses of fertilizer application in crops proposed.</p>
	<p>Pulses in cropping rotation</p>	<p>Integrated soil and crop management for rehabilitation of pulse production in rice-wheat cropping system.</p>	<p>DDAs will ensure quality seed of important pulses for Kharif and Rabi seasons. The university will ensure recommendation of varieties tolerant to various types of biotic and abiotic stresses.</p>	<p>demonstrations will be laid out on Chickpea</p>

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	Crop residue	Surface residue management for improving soil health.  Improving the efficiency of nutrient utilization.	Happy seeders and other machineries for uniform distribution of residue will be ensured by DDAs.  Residue retention machinery, second generation machinery, precision and no-till farming for crops and cropping system.	Demonstrations proposed
	Bio- fertilizers	Integrate chemical fertilizers with biofertilizers  Improve the efficiency of chemical fertilizers	DDAs will ensure the availability of quality bio-fertilizers	Demonstrations proposed under INM
. <b>IPM</b>	Management of bakane disease (Foot rot disease) through nursery management.  Management of Sheath blight through clean cultivation.  Management of blast in basmati  Management of leaf folder, stem borer and white backed plant hopper (WBPH)	DDAs will demonstrate the recommended technologies at farmers field  DDAs will organize farmer's field schools.  KVKs will suggest tolerant varieties.	DDA	Demonstration proposed.

Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
	Biological control of pests in sugarcane. Agronomic management of borers in sugarcane.	Strengthening of bio-control lab.	Sugar mill	Strengthening of bio- control lab at cooperative sugar mill proposed.
	Quantification, characterization and management of resistance of key pests against insecticides in vegetables.	Strengthening of quality of pesticide lab of state department.		
	Diversification of wheat varieties against rusts. Management of wheat aphids	Survey and monitoring of incidence of rust and aphids in wheat	DDA/ KVK	Survey and monitoring proposed.
<b>iii. IWM</b>	Spraying techniques for improving efficiency of herbicides. Monitoring of herbicide resistance.	Demonstration of candidate varieties at farmer's field. Survey & demonstrations	DDA	Demonstration proposed. Survey proposed.



Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/ Target	Cost
<p><b>iv. Wheat</b></p> <p><b>Timely seeding of wheat</b></p>	<p>Delayed harvesting of Basmati rice, cotton, availability of irrigation, excess/untimely rains</p> <p>Zero tillage, short duration varieties of rice, reduced duration of Basmati rice, direct seeding of Basmati, Bt cotton, regulation of canal irrigation water supply</p>	<p>Extension and development agencies should 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.</p> <p>The technology meet to be further developed for other cropping systems and other crops.</p>	<p>DDAs/KVKs</p> <p>DDA</p>	<p>Demonstrations proposed.</p> <p>Campaigns, hoarding/posters, field days, district level training camps</p>
<p><b>. Cotton</b></p>	<p>Quality seeds, mealy bug , less plant population, resistance development, availability of niches for carry over of pests, delayed picking and its adverse effects on wheat sowing.</p>	<p>DDAs will facilitate demonstrations on six niche areas proposed in column 2</p> <p>Survey will be conducted for spectrum of pests</p>	<p>Linkage and synergies with private sector will be developed for outsourcing Bt hybrid seeds and/or developing MOU for seed production by securing parent lines.</p> <p>DDAs and KVKs</p>	<p>Demonstrations proposed.</p>

<b>Activity/Crop/Commodity</b>	<b>Issues</b>	<b>Mode of Action</b>	<b>Collaborator/ Target</b>	<b>Cost</b>
<b>10. Raya</b>	Less use of sulphur, menace of Orobanche, low green manuring, attack of painted bug, frost management	Demonstrations will be laid out on each of the issues given in column 2. Frost resistant variety will be targeted for the year 2011-12	DDAs will demonstrate the virtues of green manuring and sulphur nutrition	Demonstrations on sulphur is proposed.
<b>11. Pulses</b>	Late maturing arhar and reduction in wheat yield, late planting of arhar , problem of helicoverpa , pod borer problem, less use of phosphatic fertilizers  Chickpea  Management of pod borer	New varieties with short maturity will be tested with the help of kvk.  Inter cropping of other crops viz sorghum/maize or bajra under bed planting system.  Management of pod borer will be demonstrated.  Management strategies will be demonstrated at farmer' field	DDA will facilitate the demonstrations on new varieties, early planting, pod borer management and KVK will be involved in Management.  Action DDA	Demonstrations proposed in plan.
<b>12. Other crops (, Barley, Guar)</b>	Nutrient and weed management in Barley and guar.	Demonstrations will be laid out on Barley and guar nutrition and weed management	DDA	Demonstrations proposed in plan.

#### **4.9 Recommended interventions for the district, with detailed Action Plan with costs**

A comprehensive package of extension activities, site specific input management along with infrastructural support (by means of special project) that are vital for increasing farm income, productivity and employment and setting the ground for evolution of a ‘second Green Revolution’ in the district is recommended herewith. The main ingredients of package are:

- Capacity building and skill upgradation of farmers to broaden their knowledge base
- Propagating resource conservation technologies
- Popularising new technologies and farm practices through demonstrating-
  - Area specific improved varieties, hybrids and GM seeds
  - Demonstrations on INM, IPM with a shift in focus from fertilizer nutrients and chemical usage per se to judicious application
- Organise train and link farmers to domestic and international markets in PPP frame work

For the field extension worker and the farmer the whole set of activities boils down to extension activities viz. Trainings, demonstrations on quality seeds, INM, IPM, RCTs, soil and water management, credit and market management etc. It is essential to make better use of given research in a sustainable manner for increased production , productivity and employment generation.

The proposed activities are as under-

**Table 4.1: Training Proposed for Capacity Building of Agriculture Staff (at District level)**

Name of the Department	Year wise no. of staff to be trained											
	Phy- No. , Fin. – Rs in lacs											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
<b>Agriculture</b>	500	3.0	500	3.0	500	3.0	500	3.0	500	3.0	2500	15.0
<b>Cooperative &amp; NGOs</b>	250	1.5	250	1.5	250	1.5	250	1.5	250	1.5	1250	7.5
<b>PRI Staff &amp; Others</b>	100	0.6	100	0.6	100	0.6	100	0.6	100	0.6	500	3.0
<b>Total</b>	<b>850</b>	<b>5.1</b>	<b>850</b>	<b>5.1</b>	<b>850</b>	<b>5.1</b>	<b>850</b>	<b>5.1</b>	<b>850</b>	<b>5.1</b>	<b>4250</b>	<b>25.5</b>

**Cost norms – Rs 600/ trainee/day**

**Table 4. 3 : Training Proposed for Capacity Building of Farmers at block level**

Name of the Block	Year wise no. of farmers to be trained											
	Phy- No. , Fin. – Rs in lacs											
	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Jhajjar	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Beri	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Salhawas	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
Matanhail	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
B.Garh	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	2500	5.0
<b>TOTAL</b>	<b>2500</b>	<b>5.0</b>	<b>2500</b>	<b>5.0</b>	<b>2500</b>	<b>5.0</b>	<b>2500</b>	<b>5.0</b>	<b>2500</b>	<b>5.0</b>	<b>12500</b>	<b>25.0</b>

**Table 4.2 : 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	1050	4.20	1050	4.20	1050	4.20	1050	4.20	1050	4.20	5250	21.0
NRM	700	2.80	700	2.80	700	2.80	700	2.80	700	2.80	3500	14.0
IPM	1050	4.20	1050	4.20	1050	4.20	1050	4.20	1050	4.20	5250	21.0
RCTs	1050	4.20	1050	4.20	1050	4.20	1050	4.20	1050	4.20	5250	21.0
Water management	700	2.80	700	2.80	700	2.80	700	2.80	700	2.80	3500	14.0
Post Harvest Management	350	1.40	350	1.40	350	1.40	350	1.40	350	1.40	1750	7.00
Women empowerment fabric enrichment (Tie & Dye)	350	1.0	350	1.0	350	1.0	350	1.0	350	1.0	1750	5.0
Credit marketing &	700	2.80	700	2.80	700	2.80	700	2.80	700	2.80	3500	14.00
Seed Production	700	2.80	700	2.80	700	2.80	700	2.80	700	2.80	3500	14.00

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
Farm waste and crop residue management	250	1.0	250	1.0	250	1.0	250	1.0	250	1.0	1250	5.0
Vermi-composting	100	0.40	100	0.40	100	0.40	100	0.40	100	0.40	500	2.0
Farm Mechanization	700	2.80	700	2.80	700	2.80	700	2.80	700	2.80	3500	14.00
Renewable energy	100	0.40	100	0.4	100	0.40	100	0.40	100	0.40	500	0.40
<b>Total</b>	<b>7800</b>	<b>30.8</b>	<b>7800</b>	<b>30.8</b>	<b>7800</b>	<b>30.8</b>	<b>7800</b>	<b>30.8</b>	<b>7800</b>	<b>30.8</b>	<b>39000</b>	<b>152.4</b>

**Table 4.4 : Varietal Demonstration in Next Five Year**

Name of crop	Average Area per demonstration (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.
<b>Paddy</b>	0.4	700	35.0	700	35.0	700	35.0	700	35.0	700	35.0
<b>Arahr</b>	0.4	180	9.0	180	9.0	180	9.0	180	9.0	180	9.0
<b>Jowar</b>	0.4	130	6.5	130	6.5	130	6.5	130	6.5	130	6.5
<b>Bajra</b>	0.4	180	9.0	180	9.0	180	9.0	180	9.0	180	9.0
<b>Cotton</b>	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5
<b>K. Pulses</b>	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5
<b>Wheat</b>	0.4	1650	82.5	1650	82.5	1650	82.5	1650	82.5	1650	82.5
<b>Raya</b>	0.4	80	4.00	80	4.00	80	4.00	80	4.00	80	4.00
<b>Gram</b>	0.4	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5
<b>Total</b>		<b>3070</b>	<b>153.5</b>	<b>3070</b>	<b>153.5</b>	<b>3070</b>	<b>153.5</b>	<b>3070</b>	<b>153.5</b>	<b>3070</b>	<b>153.5</b>



**Table 4.5 : INM Demonstrations in Next Five Years**

**(Phy Area covered in ha)**

**(Fin – Rs. In lakh)**

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	<b>0.4</b>	250	12.5	250	12.5	250	12.5	250	12.5	250	12.5	<b>1250</b>	<b>62.5</b>
Arahr	<b>0.4</b>	100	5.0	100	5.0	100	5.0	100	5.0	100	5.0	<b>500</b>	<b>25.0</b>
Jowar	<b>0.4</b>	100	5.0	100	5.0	100	5.0	100	5.0	100	5.0	<b>500</b>	<b>25.0</b>
Bajra	<b>0.4</b>	100	5.0	100	5.0	100	5.0	100	5.0	100	5.0	<b>500</b>	<b>25.0</b>
Cotton	<b>0.4</b>	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25	<b>125</b>	<b>6.25</b>
K.Pulses	<b>0.4</b>	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5	<b>250</b>	<b>12.5</b>
Wheat	<b>0.4</b>	1750	87.5	1750	87.5	1750	87.5	1750	87.5	1750	87.5	<b>8500</b>	<b>437.5</b>
Raya	<b>0.4</b>	250	12.5	250	12.5	250	12.5	250	12.5	250	12.5	<b>1250</b>	<b>62.5</b>
Gram	<b>0.4</b>	35	1.75	35	1.75	35	1.75	35	1.75	35	1.75	<b>175</b>	<b>8.75</b>
Barseem	<b>0.4</b>	35	1.75	35	1.75	35	1.75	35	1.75	35	1.75	<b>175</b>	<b>8.75</b>
<b>Total</b>		<b>2695</b>	<b>134.75</b>	<b>2695</b>	<b>134.75</b>	<b>2695</b>	<b>134.7</b>	<b>2695</b>	<b>134.75</b>	<b>2695</b>	<b>134.7</b>	<b>13225</b>	<b>661.5</b>

**Table 4.6 :Demonstrations 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	<b>0.4</b>	300	15.0	300	1.5	300	1.5	300	1.5	300	1.5	<b>1500</b>	<b>75.0</b>
Bed planting	<b>0.4</b>	100	5.0	100	0.5	100	0.5	100	0.5	100	0.5	<b>500</b>	<b>25.0</b>
Green manuring	<b>0.4</b>	500	25.0	500	2.5	500	2.5	500	2.5	500	2.5	<b>2500</b>	<b>125.0</b>
Direct seeding of paddy	<b>0.4</b>	100	5.0	100	0.5	100	0.5	100	0.5	100	0.5	<b>500</b>	<b>25.0</b>
Summer moong	<b>0.4</b>	250	12.5	250	1.25	250	1.25	250	1.25	250	1.25	<b>1250</b>	<b>62.5</b>
<b>Total</b>		<b>1250</b>	<b>62.5</b>	<b>1250</b>	<b>62.5</b>	<b>1250</b>	<b>62.5</b>	<b>1250</b>	<b>62.5</b>	<b>1250</b>	<b>62.5</b>	<b>6250</b>	<b>312.5</b>

**Table 4.7 (i): IPM Demonstrations in Next Five Years**

**(Phy Area covered in ha)**

**(Fin – Rs. In lakh)**

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	<b>0.4</b>	30	1.5	30	1.5	60	3.0	100	5.0	120	6.0	<b>340</b>	<b>17.0</b>
Pulses	<b>0.4</b>	100	5.0	200	10.0	300	15.0	350	17.5	400	20.0	<b>1350</b>	<b>67.5</b>
Paddy	<b>0.4</b>	100	5.0	100	5.0	250	12.5	250	12.5	300	15.0	<b>1000</b>	<b>50.0</b>
Sugarcane	<b>0.4</b>	100	5.0	120	6.0	150	7.5	150	7.5	200	10.0	<b>720</b>	<b>36.0</b>
Total		330	16.5	450	22.5	760	38.0	850	42.5	1020	51.0	<b>3410</b>	<b>170.5</b>

**Table 4.7(ii) : Seed Treatment Demonstrations in Next Five Years**

Crop	Area under each demo.	Demonstrations Projection (Phy- Area covered in ha, Fin – Rs. In lacs)											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Wheat	0.4	20000	50.0	20000	50.0	20000	50.0	20000	50.0	20000	50.0	100000	250.0
Paddy	0.4	10000	25.0	10000	25.0	10000	25.0	10000	25.0	10000	25.0	50000	125.0
Raya	0.4	2000	20.0	2000	20.0	2000	20.0	2000	20.0	2000	20.0	10000	100.0
Total		32000	95.0	32000	95.0	32000	95.0	32000	95.0	32000	95.0	160000	475.0

**Table 4.8 : Farmer Field Schools covering identified critical technologies in Next Five Years**

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

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	<b>75</b>	<b>15.0</b>
Paddy	15	3.0	15	3.0	15	3.0	15	3.0	15	3.0	<b>75</b>	<b>15.0</b>
K. Pulses	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Cotton	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Bajra	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Jowar	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
S. Cane	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Gram	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	<b>10</b>	<b>2.0</b>
Oil Seeds	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Total	87	17.4	87	17.4	87	17.4	87	17.4	87	17.4	<b>435</b>	<b>87.0</b>

**Table 4.9: 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.
Seed production	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	<b>100</b>	<b>20.0</b>
Water user	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	<b>100</b>	<b>20.0</b>
Organic Farming	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	<b>10</b>	<b>2.0</b>
Value addition	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Specific Crop group	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Total	57	11.4	57	11.4	57	11.4	57	11.4	57	11.4	<b>285</b>	<b>57.0</b>

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

#### 4.10 Projected outcome and growth rate during the plan period

**Table : Area, Production and Productivity Trend of Main Crops in the District (Area – ha, Production – 000 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	85100	315.5	37.10	85100	328.31	38.58	85100	341.42	40.12	85100	355.03	41.72	85100	369.16	43.38	85100	383.88	45.11
2	Raya	56400	48.0	8.54	56400	50.08	8.88	56400	52.05	9.23	58000	55.68	9.60	60000	59.88	9.98	62000	64.35	10.38
3	Gram	1300	0.9	7.0	2500	1.82	7.28	3500	2.64	7.57	5000	3.93	7.87	6000	4.88	8.14	7000	5.92	8.46
4	Paddy	17000	29.0	16.99	17000	30.03	17.67	17000	31.24	18.38	17000	32.48	19.11	17000	33.77	19.87	17000	35.12	20.66
5	Bajra	26800	34.0	12.56	26800	35.0	13.06	26800	36.39	13.58	26800	37.84	14.12	26800	39.34	14.68	26800	40.92	15.27
6	Arhar	4000	3.2	8.0	7000	5.82	8.32	7000	6.0	8.65	9000	8.0	8.99	12000	11.22	9.35	12000	11.66	9.72
7	Jowar (foddar)	25400	7.0	2.7	25400	7.13	2.81	26000	7.59	2.92	26000	7.90	3.04	27000	8.53	3.16	27000	8.88	3.29
8	Summer moong	-	-	-	500	1.5	3.0	3000	10.5	3.5	4000	16.0	4.0	5000	20.0	4.0	6000	24.0	4.0

## **CHAPTER V:**

### **Allied Agricultural Sectors.**

#### **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 these sectors which are pushing the total agricultural growth on upward side. The demand for allied agricultural produces is also increasing at a much faster rate than the demand for agricultural crops or cereals. For the farmers these allied sector activities/ enterprises are integral part of their farming system since long. Farmers of Jhajjar district are actively engaged in cultivation of allied enterprises to meet own home requirements and subsequently (later on exclusively too) for the market. The thrust in the district has been on dairy and horticulture (especially vegetable crops). The farmers of this district have earned a name for themselves in mushroom cultivation. The district is also steadily making progress in other sectors e.g. poultry, fishery, goatry, piggery, bee keeping, vermicomposting etc. With rising incomes and changing diet patterns the consumption and demand for these products is increasing and the farmers of this district must come forward to seize on this opportunity of raising farm productivity and income and employment generation.

#### **5.2 Horticulture Development**

Diversification through horticulture is a technique for sustained growth in the farm income. As micro irrigation concept (drip irrigation) to save the water. The importance of fruits and vegetable crops in improving the nutritional status and farm economy needs no elaboration. It offers excellent alternative for diversification in agriculture by ensuring



balanced use of land, water and other resources for promoting sustainable agriculture besides increasing income of the farmers. Agro-climatic conditions, soil and water availability, marketing opportunities in and around the district make it suitable for growing a wide variety of fruits like ber, guava, aonla, jamun etc., all major vegetables including exotic and high value , spice crops like chillies, garlic, and flowers like chrysanthemum, Gladiolus marigold. With National Horticulture Mission (NHM) under progress and financial and technical helps available from both NHB, State government and other institutions there is great potential for area expansion under all horticultural crops especially vegetable crops, floriculture, and bee keeping. The existing marketing, cold storage, post harvest and processing facilities are being strengthening in the district which will provide much more opportunities for expansion of this sector through extending market reach, value addition and post harvest management.

Organic farming is another promising area for some enterprising farmers as with increasing awareness the market for organic agri-produce is increasing. Some of the growers have taken up organic farming on a commercial scale. They and others who are willing to opt organic farming need to be assisted with proper registration and certification with national/ international agencies. Keeping in view, the future expansion of trade in organic products, the marketing as well as technical and certification services are needed to be strengthened.

**Various On - going Schemes in the district**

<b>HORTICULTURE</b>		
1.	National Horticulture Mission	Central
2.	Macro management Mode	Central

### **5.3 Animal Husbandry**

Animal husbandry( particularly murrah buffalo) is the main section of the farming system in district Jhajjar. Central to the challenge of ensuring improved livelihood and environmental sustainability are the ruminant livestock-particularly buffalo, cattle and goats- that are an integral part of the district's farming system. The expanding market with rise in demand for diverse animal products and easy access to marketing are added opportunities for further strengthening of this allied sector in the district with wide network of infrastructural and support services. This sector's vast potential can be harnessed for growth in employment and income and far restoring soil health too. The emerging efficient and modern system of marketing and processing will certainly provide boost to this sector in the district.

#### **Dairy Development**

Dairy is an essential component of rural areas of the district. There is a long tradition of rearing dairy animals by the farmers in the district. Large number of landless families are also engaged in dairy rearing. There are 37300 numbers of cattle and 256400 numbers of buffaloes in the district as per latest cattle census (2007). The numbers of cross bred cows are 3800 which are almost one third of the number of indigenous cows. The choice of the farmers is however buffalo. As per latest cattle census the numbers of dairy animals are showing a declining trend but there is visible improvement in the stock of these animals. Enhanced farmers interest and thrust of animal husbandry department and other government departments and agencies is helpful in increasing milk yield in the district. The average milk yield of cross bred cows, indigenous cows and indigenous buffalo is 5.94 kg 4.0 kg and 5.8 kg per day respectively. There exists wide gap between

the average yield and attainable yield and/or potential yield which offers scope for improvement in productivity. The existing gaps in germplasm, low reproductive efficiency, shortage of quality feed and fodder (even quality) inadequate disease management etc. can be addressed through a shift towards technology-driven livestock production and management. The stock/germplasm gap can be tackled through A.I. services and supply of known pedigree bulls. The gap of milk yield can be bridged through availability of green fodder and popularising hay and silage making addressing the mineral deficiency. The high calf mortality and other disease menace would effectively be checked by starting extensive campaigns. Malnutrition of animals especially of resource poor farmers can be tackled by providing complete feed blocks which can be prepared by using both locally available and unconventional feed stuffs. For effective disease control, the veterinary services are to be strengthened by providing different improved diagnostic kits for mastitis, F& M etc. and providing mobile hospital vans for door step services to the farmers.

The existing schemes and programmes for improvement of health of animals and enhancing milk productions are planned to be supplemented under RKVY through organising different extension activities for farmers and technical staff and formulation of special projects mentioned in the chapter VI.

### **Various On - going Schemes in the district**

<b>ANIMAL HUSBANDRY</b>		
1.	Integrated Murrah Preservation Programme	Central
2.	Foot & Mouth control Programme	Central
3.	Minim dairy Scheme	State
4.	Calf rallies Programme	HLDB
5.	Women awareness Camps	HLDB
6.	Top quality buffalo calves purchase Programme	HLDB

### **Poultry Development**

Poultry farming though considered to be a subsidiary occupation to agriculture yet it has established itself as one of the important independent commercial activity in the district. Climate, infrastructural facilities, easy finance and availability of ready market (Delhi) contributed favourably towards development of this activity. Over years there has been an increase in number of poultry birds (layers and broilers) however uncertainty in markets during last few years has hindered its growth. As per 2007 animal census there were 104200 poultry birds in the district. There are well established backward and forward linkages for the poultry in and around the district. One important facture of poultry farming in the district is contract farming of broiler of farmers with one M/S SKY lark Hatcheries.

### **Promotion of back yard poultry**

This backyard poultry farming needs institutional support for its success as the productivity is quite low in these cases. The improved strains for this type of farming (e.g. vanaraja and gramapriya) together with their production packages are required to be

delivered to the farmer doorstep for healthy growth of this type of poultry which is having an assured nutritional supply and a sizeable return with no or little extra cost to the farm family. There exists a sizeable market for the product & i.e. eggs and meat of these birds in local areas and the nearby cities. The extension services, training and marketing needs of both types of poultry farming are to be effectively addressed in the plan.

The growing urbanisation , increasing demand for poultry , meat and eggs and expanding poultry units would get a boost if a marketing / poultry hub can be developed particularly in this region of state as of now there is no marketing center of these products in the area.

### **Sheep, Goat and Piggery Development**

Sheep, goat and pig have an important role in the sustenance and livelihood security of a section of farmers and land less rural. The rearing of these animals is having potential for poverty alleviation with low risk. With the availability of few open pastures in the district, sheep and goat rearing is not feasible in a big way. However, promoting small units as subsidiary to the agriculture by land less labourers and those traditionally engaged in such activities is quite feasible. The improved strains of goat & sheep with semi-intensive feeding system, parasitic control measures and promotion of good management practices can ensure healthy economic return to the farmer. Under the plan a small percentage of willing land less farmers would be persuaded to go for rearing of 2 to 4 goats (especially Barbari and/ or another suitable one). This will be low cost , no risk moderately income generating activity with nutritional security for the family. Just like back yard poultry , this activity can be under taken on a limited scale which have unexploited market potential in and around the village itself. In the past piggery had gained momentum as an important economic activity in the district but because of problems related to diseases and transportation the pace gained has subsided to some extent. With

increasing urbanization, the supply of pig feed can be assured from hotels and restaurants wastes. The improvement in transportation facilities and ready assured markets in national capital of Delhi has brighten up the scope for its growth in the district.

The extension activities proposed for modern pig farming especially on improved strains , modern general health and disease management practices can boost the pig farming in the district.

### **Fisheries Development**

Fish culture is being accepted by the farmers as one of the subsidiary occupation in the district. The fish farming in Jhajjar is mostly being done in village / panchayat ponds on lease. The added advantage of village pond fishery is the high cattle population of the villages. Cattle visiting village ponds ( a common practices) add fertilisation in the shape of cow dung to the pond resulting in production of natural food for fish. The productivity of village pond is high and live fish is marketed. There exist wide potential for increasing production and productivity. The per ha productivity needed to be raised up to 7000 to 8000 kg/ ha. The bottle necks of weak infrastructure for fish seed production and genetic upgradation , lack of extension services and recently hiked water charges and amendments in panchayat act pertaining to village / panchayat pond need immediate readdressal for putting fishing in still higher growth orbit. Different programmes/ schemes have been launched by fishery department to cater the needs of fish farmers. These activities are proposed to be strengthened under the plan for further development especially the skill up gradation, fingerling production and adoption of intensive / poly culture fish farming.

## Various On - going Schemes in the district

<b>FISHERIES</b>		
1.	Establishment of FFDA	State
2.	Inland capture fisheries	State

### **Agro- Forestry**

Jhajjar district has a very small area under forest which is nearly 2% of the total area. The forest department has been engaged in planting the new trees to increase the area under forest during last two decades. A special mission of social forestry was started in the district Jhajjar to increase the area under forest. Still now, the area under forest has not crossed 10% of the desired level of 25% of total area under forest ( as per the National Policy 1989) To increase the farm income in long run and proper ecological balance it is the need of the our to grow more forest trees on the farmers fields. More training and demonstrations may be conducted for plantation of Eucalyptus, poplar and other medicinal plants like neem etc. in the 11th Five Year Plan.

### **Agro and Food Processing**

Post harvest technology management and food processing have a crucial role in value addition to agriculture. In consonance with central government policies, Haryana state has also given thrust to agro and food processing with a number of policy initiations.

The establishment of Food Parks and efforts made towards contract farming are other such steps towards popularising agro/ food processing sector. In addition to the huge domestic market , the WTO agreement and opening up of international markets , the agro food processing has assumed significance and has thrown open new opportunities and challenges. Among others the big corporate like Reliance , Bharti, Pepsi, NDDB, ITC etc. are keenly exploring the present scenario to sieze these new opportunities in the rural sector. The state of Haryana with its production capabilities, infrastructure and large consumer base provides a unique opportunity to industries in food processing sector.

Besides regular food processing, health foods, value added dairy products.

The extension activities i.e. specific trainings and demonstrations, site specific application of fertilizers- nutrients, IPM and seed production, along with the programme of developing linkages in PPP mode, encouraging farmer to form commodity groups/ associations etc. are aimed at harvesting quality produce as per market needs for better farm return on a sustainable basis.

Farm level value addition is also proposed to be encouraged under the plan. The vast market potential of raw or partially processed or value added products existing at local level can be harnessed with little extra efforts on part of farmer – producer. The specific skill up gradation or capacity building needs of these farmers are proposed to be met by extension/ development agencies in the plan. The direct supply of several of agri produces such as pickles, pulses , ghee, khoya, paneer, eggs, dressed meet etc. to the local consumers by individual farm entrepreneur or by formation of specific self help groups are also planned under this plan.

### **Agricultural Marketing**

The agricultural marketing infrastructure is fairly developed in the district with 5 regulated markets and 8 sub yards. The ware houses with a capacity of 6500 MT. All the villages are connected with all weather roads. The district is well connected with the big market of National Capital of Delhi with road and rail network. The nearness to Delhi market has contributed a lot towards development of agriculture and its diversification towards allied sectors in the Jhajjar district.

The marketing opportunities for dairy products are abundant in Delhi and local city of Jhajjar and other towns. There is also one chilling plant with - dairy cooperatives and - milk routs operating in the district besides the independent chain of milk vendors and private players operating in the district.

Vegetables, fruits, mushroom, fish and other animal based products like egg, meat etc. are primarily marketed in the Delhi market, though the opportunities in the Jhajjar city itself are on the rise due the rapid expansion of urban areas. In spite of huge marketing



facilities, avenues and opportunities, farmers often find them selves at the receiving end in the marketing of their produces. Marketing it self is not so high on the agenda of farmers though they suffer a considerable loss in ignoring this important aspect. More than before, the efficient marketing is the key to the overall development of the farm sector now. In the wake of WTO agreements farmers have to cater to (and face the challenge of) the international market which is not possible without farmers education about modern day marketing needs and their strong linkages with firms/markets/consumers.

### **Market Proposals**

Keeping in view the future trends a market hub is proposed to be developed in Jhajjar district especially for marketing of poultry and meat as this sector is developing fast with out proper marketing infrastructure in this part of state.

Marketing of organic produce is also channelized by educating farmers and creating facilities for certification and trading of these products to cater to the future demands.

### **Extension Activities**

Extension programmes are proposed to be undertaken in plan for

- Educating farmers in deciding what, when, and how much to produce and when and where to sell
- Providing marketing intelligence, e- marketing facilities and its awareness among farmers
- Establishing linkages of farmers with firms i.e. extension- farmer – market linkages through contract/ contact farming, buy back agreements, backward linkages
- Encouraging farmers to go for value addition, proper grading and packing and other such practices
- Motivating farmers to form SHGs or commodity interest groups for effective

marketing

### **Agricultural credit**

The net work and facilities to meet the credit needs of agricultural and allied sector is fairly developed in the district. The details of the banks and their branches are as follows

Sr. No.	Name of bank	No. Of branches
1	Commercial banks	42
2	Jhajjar CCB	10
3	PACS	23
4	HGB	5
	Total	80

Punjab National Bank is the lead bank of the district. Haryana Government has restructured the PACSs and marketing societies to form multipurpose Cooperative Society to make them 'Single Window Agency' for farm sector. These are meant for providing all types of credit, agricultural inputs, services, technical know how, storage marketing and processing.

The maximum numbers of these credit institutions are in Bahadurgarh block 43 where as Beri, Salhawas, Matanhail and Beri blocks are having only 3, 4, and 3 branches, respectively. For financing all types of agricultural activities, these credit institutions disbursed Rs. 554.67 crores during the year 2006-07. Considering the expansion of the sector, the loan disbursement target has been raised upto Rs. 700 crores in the fifth year of XI<sup>th</sup> plan. Linkages between credit institutions and agriculture and line departments are well established for development of agriculture and allied sectors.

With restructuring of PACSs and increasing involvement of commercial banks in agriculture and allied sectors, the extension programmes are needed to be compulsorily

broad based by involving these personnel for effective delivery.

### **Farmers Club**

There are 35 farmers' club in the district promoted by different credit institutions such as commercial banks, RRBs, and cooperative societies.

### **Farmers Welfare Club**

There is one farmer welfare club promoted by department of agriculture. The capacity building, skill up gradation and entrepreneurship development programme for these SHGs, Farmers' club and Farmers' welfare club are proposed in the plan to meet their specific needs for over all development.

### Sustainability issues and gap analysis of productivity of different allied sectors

S. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
1	<b>Horticulture</b>					
i	Fruit crop	Imbalance use of fertilizers, untimely irrigation, poor management, lack of pollinators	Educate farmers on proper management of fruit crops, balanced and timely application of fertilizers and organic manures and irrigation	Trainings demonstrations, and farmers field school through farmers participatory approach	15% growth in area to reduce fruit drop every year	Increase yield and profitability
		i) Traditional cropping system ii) Use of inadequate and imbalance doses of fertilizers iii) Small & fragmented land holdings iv) non-availability of good quality and disease free seed/ plant material of commercial/ improved varieties/ cultivars v) Saline/sodic underground water	i) Crop diversification through horticultural ii) Adequate & balanced use of nutrients Establishment of nurseries locally in view of need based supply of seed/ planting material Plantation of tolerant/ resistant crops & their varieties/ cultivars Adoption of drip & sprinkler irrigation	Replacement of area under traditional crops with horticultural crops Adequate & balanced nutrient supply will be ensured Micro irrigation will be adopted Drought & salt resistant crops & vars. Will be preferred	20% growth in area every year	Improvement in quality and yield

S. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
		vi) Limited sources of irrigation and poor rain water management vii) unorganised market for horticultural produce. viii) Inadequate/ no storage facilities locally. ix) poor/ no processing facilities/units locally	Establishment of markets chain, provision of MSP  Establishment of cold storage and cool chain facilities  Establishment of processing units in the vicinity	Insitu water harvesting and micro-irrigation system will be adopted  Zero energy chambers will be popularized and proper PHM will be encourages		
2	<b>Vegetable crops</b>					
i	Seed treatment	Unawareness, unavailability of small packing of fungicides	Educate farmers regarding benefit of seed treatment	Trainings, demonstrations, seminars, field days to make aware farmers	10% growth in area under seed treatment every year	Increased yield on sustainable basis
ii	Poor nursery management	Unawareness, poor germination	Line sowing, drenching irrigation with showers, proper application of compost in nursery	Mass campaign of nursery management through trainings & demonstrations polarise nursery raising in poly house	10% growth in area under good managed nursery every year	Quality seed lings, Increased income and saving in resources

S. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
iv	Imbalance use of fertilizers	Excessive use of nitrogenous fertilizers, less use of organic manures and micronutrients	Educate farmers in balanced use of fertilizer importance of k, and other micronutrients and organic manure on quality of vegetables	Trainings, demonstrations, farmers field school and awareness campaigns	15% growth in area under balanced use of fertilizers every year	Improvement quality and quantity of the produce
3	<b>Dairy</b>					
i.	Poor stock	Un-controlled breeding	Maintenance of herds of pure breed at Govt./ regd. Societies level, supply of quality bulls for natural inseminator, Improvement in A.I. facilities at village level. Association/ group formation of breeders its at village level. Ensure supply of kits for detecting the proper time for A.I.	Popularize benefit of the A.I. provide quality bulls to the panchayat with its responsibility of maintenance	10% village panchayats should be provided quality bulls	Improvement in breed and milk yield
ii	Imbalance feeding	Non availability of quality green fodder sound the year. Lack of awareness regarding use of mineral mixture	Educate farmers regarding benefit of mineral mixture. Cultivation of leguminous + grassy fodder should be encouraged	Ensure 6-8% of the total area under quality fodder crops. Demonstrate the impact of mineral mixture milk yield	Entire district	Improvement in health of the animals and bulk yield on sustainable basis.
iii	Repeat, Anestrous problem	Imbalance feeding, poor management practices, parasitic problems and problem of heat detection.	Ensure balanced feeding, improved management practices and control of endo and ecto parasites. Kit for detection of heat in animals would be supplied to vety hospitals. Deworming of adult animals	Farmers would be advised/ educated to adopt the use of mineral mixture, extreme summer & winter management	Entire district	Improvement in animals health

S. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
iv	Calf mortality	Endo & ecto parasites, poor winter management	Providing deworming facility at the doorstep with latest quality dewormer	Mass awareness adoption campaign for deworming for control of endo parasites. Awareness campaign of feed management in extreme winter	Whole of the district the calf mortality be reduced to 5% from 24% with in 5 years	Increase in animals resource
4	<b>Poultry</b>					
i	Incidence of infectious diseases.	Poor disease diagnostic facilities, high cost of medicines and vaccines.	Strengthening of disease diagnostic lab at district level. Providing vaccination facility at door step at subsidized rates.	Vaccination campaign for control of diseases.	The reduction of incidence in infectious diseases.	Increase in profitability.
ii	Less developed backward and forward linkages	Lack of knowledge and interaction.	To educate farmers on PPP concept. Promoting farmers' groups for developing linkages for mutual benefits.	Awareness campaign. Bringing all stakeholders on a common platform.	Group formation and linkages developed and strengthened.	Better and efficient marketing , increased farm incomes.
iii	Poor feeding and up keeping management	High cost of ready-made feeding material. Lack of knowledge.	Educating farmers on low cost, locally available feed and management practices.	Trainings, demonstrations and farmer field school through farmers participatory approach	Reduction in feeding cost and improvement in up-keeping of birds.	Increased productivity and profitability.
iv	High incidence of nutritional disorders	Lack of knowledge and availability	Awareness regarding nutritional disorders, its causes and prevention.	Extension activities, and supply at cheaper or subsidized rates.	20% reduction in nutritional disorders per annum.	Increase in egg yield and rapid weight gain in broilers.

S. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
5	<b>Fisheries</b>					
i	Quality seed	Inadequate quality seed availability, poor breed,	Ensure quality seed availability, educate farmers on seed production. Strengthening of seed production units.	Extension activities, new seed production units will be established.	20% growth in area under quality seed per annum.	Increase in productivity and profitability.
ii	High mortality of juavemine and adult fish	Lack of facilities for disease diagnosis.	Strengthening of disease diagnosis facility at district level. Creating awareness .	Trainings and demonstrations in farmers' participatory approach.	20% reduction in mortality rate per year.	Increase in productivity and profitability.
iii	Poor adoption of modern techniques of fish farming	Inefficient dissemination of technologies, less extension activities.	Educating farmers on modern techniques of fish farming. Strengthening of training facilities.	Trainings and demonstrations in farmers' participatory approach.	20% growth in area under modern techniques of fish farming per annum.	Increase in productivity and profitability.
7	<b>Piggeries</b>					
i	High infestation of worms	Lack of deworming	Providing deworming facility at the doorstep with latest quality dewormer	Mass awareness adoption campaign for deworming for control of endo parasites. Awareness campaign	20% reduction in worm infestation rate per year.	Increased profitability.
ii	High infestation of diseases	Lack of proper vaccination and disease control measures.	Strengthening of disease diagnostic lab at district level. Providing vaccination facility at door step at subsidized rates.	Vaccination campaign for control of diseases.	The reduction of incidence in infectious diseases.	Increase in profitability.



S. No.	Gap	Factors/constraints leading to gaps	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
iii	Improper feeding and up-keeping	Less area under pasture, high cost of feeding materials.	Educating farmers on low cost, locally available feed and management practices.	Trainings, demonstrations and farmer field school through farmers participatory approach	Reduction in feeding cost and improvement in up-keeping of birds.	Increased productivity and profitability.
7	<b>Sheep &amp; goats</b>					
i	High incidence of diseases and worm infestation	Lack of vety. Facilities, lack of proper vaccination, deworming and disease control measures.	Strengthening of disease diagnostic lab at district level. Providing vaccination, deworming facility at door step at subsidized rates.	Vaccination and deworming campaign for control of diseases and worms.	The reduction of incidence in infectious diseases and worms.	Increase in profitability.
ii	Poor stock	Rearing of animals of non descriptive breed.	Providing animals of suitable breed to the farmers.	Breed improvement campaign.	Improvement in breed.	Increased productivity and profitability.
iii	High incidence of mineral deficiency	Improper feeding, shrinking pastures,	Educating farmers on low cost, locally available feed and management practices.	Trainings, demonstrations and farmer field school through farmers participatory approach	Reduction in feeding cost and improvement in up-keeping of animals.	Increased productivity and profitability.
8	<b>Forestry</b>					
i	Shishem & Kikar mortality	Fungal infection	Survey and identification of causal organism.	Demonstration and trial through farmers' participatory approach	Reduction in mortality.	Increased productivity.

## Closing the gaps for realizing the vision

Activity Output Matrix for Allied Sectors				
Activity/Crop/Commodity	Issues	Mode of Action	Collaborator/Target	Cost
1. Vegetable cultivation	<p>Non-availability of high quality/hybrid seeds specially from public sector</p> <p>Contamination of vegetables with pesticides/heavy metal</p>	<p>Public/private linkage and synergies either through direct testing of existing hybrid seeds of private sector or collaborating with private sector for development of hybrid seeds at the university farm</p> <p>Injudicious use of pesticides and the use of contaminated groundwater or sewage/canal. Random sampling of fresh vegetables for quantification of pesticide residue</p> <p>Survey of current status of pesticide use on vegetables for recommended or un-recommended</p>	<p>DHO and University</p> <p>Regulations regarding disposal of industrial wastes</p> <p>Establishment of state designated pesticide residue lab or outsourcing the residue analysis from other private/pesticides labs.</p> <p>DHO may collect random samples and outsource the residue analysis alternate arrangement</p> <p>DHO</p>	<p>Strengthening of pesticides lab proposed.</p> <p>Demonstration proposed.</p>

<b>Activity/Crop/Commodity</b>	<b>Issues</b>	<b>Mode of Action</b>	<b>Collaborator/ Target</b>	<b>Cost</b>
<b>Fruit crops</b>	Provision of nutritional gardens near/around tubewells.	DHO will ensure the distribution of five grafted plants to farmers for plantation on or around the tubewells. Only one species may be given for each location to facilitate watch and ward	DHO	Project proposed
Crop diversification	Establishment of new orchards/ promotion of vegetable & floricultural crops	Plantation of ber guava, aonla and citrus orchards and cultivation of floricultural crops	DHO	Project proposed
Water management	Adoption of drip/ sprinkler irrigation	i)Bringing the new plantations of fruit, vegetable & gladiolus under drip irrigation ii) Bringing the area of marigold under sprinkler irrigation	DHO	Project proposed
	Improving the infrastructure facility for procurement of milk.	The existing facilities of milk procurement will be extended in all villages.	<b>DDAH</b>	
	Strengthening facilities for creation of milk processing units.	Milk processing unit may be created/strengthened at district headquarter.	<b>DDAH</b>	
	Facilities for creation of silage and hay making	Demonstrations for economical and sustainable silage and hay making in dairies proposed in column1.	<b>DDAH</b>	Demonstration proposed
	Incentives for fodder crops in summer season.	Special demonstrations for maize/sorghum + cowpea fodder in rice-wheat system	<b>DDAH</b>	Demonstration proposed
	Creation of facilities for drinking water.	Village ponds need desilting	<b>DDAH</b>	

<b>Activity/Crop/Commodity</b>	<b>Issues</b>	<b>Mode of Action</b>	<b>Collaborator/Target</b>	<b>Cost</b>
	Promotion of crossbred and buffalo in rice-wheat cropping system areas	In North-East areas, creation of dairies of crossbred cows and their management.	<b>DDAH</b>	
	Promotion of murrah buffaloes.	In North-West part, buffalo conservation be promoted.	<b>DDAH</b>	Project proposed
	A.I. and natural service through community bulls (Private Public interface)	Private Public linkage and synergies be created. Retail outlets may also be associated with productivity improvement through A.I. and natural services.	<b>DDAH</b>	Project proposed
	Reduction of calving period – by adopting mineral mixture feeding and balanced feeding, deworming, summer management, unestrus management, free hormone therapy for repeat breeder of resource poor.	DDAHs and KVKs will jointly demonstrate the usefulness of technologies detailed in column 2. Creation of facilities for cattle feed, mineral mixture through co-operatives.	<b>DDAH</b>	Project proposed
	Diagnostic kits for diseases, vaccination as regular feature, survey and surveillance of diseases and creation of drug banks for common ailments.	DDAHs and disease diagnostic labs to formulate common strategies for disease forecasting and management. Procurement of special kits like cryoscopes, mastitis diagnostic kit, foot and mouth diagnostic kit etc.	<b>DDAH</b>	Project proposed
<b>Poultry</b>	Low production due to poor knowledge about housing and rearing, high incident of diseases, poor quality of drinking water, non availability of quality feed and healthy chicks and unorganized marketing.	DDAH and KVK will organize trainings for better management and higher production	DDAH	Trainings proposed

<b>Activity/Crop/Commodity</b>	<b>Issues</b>	<b>Mode of Action</b>	<b>Collaborator/Target</b>	<b>Cost</b>
<b>Fishery</b>	Less production of fish due to poor technical knowledge of fish farming, poor management of fish farms, poor quality of ground water and unorganized marketing	Fishery deptt. will organize trainings/ demonstrations for fisheries development during the plan period Distt. Fishery Officer (DFO) will work to develop advance stock of 10 lacs fingerlings 50 m m size during the plan period DFO will get one hatchery established during the plan period for rearing fingerlings. DFO will also contact concerned departments for arranging tube well and canal water for the hatchery.	<b>Fishery Deptt.</b>	Trainings & demonstrations proposed.
<b>Piggery</b>	Low production due to poor management, slow weight gain, lack of good quality ration/feed, less area under pastures and high incident of diseases.	DDAH and KVK will organize trainings for better management and higher production	<b>DDAH/KVK</b>	Trainings & demonstrations proposed.
<b>Sheep &amp; Goat</b>	Low production due to poor management, show weight gain, non availability of natural services, lack of ration/feed, less area under pastures, high incident of diseases and poor preventive vaccination programmes.	DDAH and KVK will organize training for better management and higher production DDA will make linkages with private agencies for starting facilities of marketing and availability of feed through co-operatives.	DDAH/KVK  DDAH	Trainings & demonstrations proposed.

<b>Activity/Crop/Commodity</b>	<b>Issues</b>	<b>Mode of Action</b>	<b>Collaborator/ Target</b>	<b>Cost</b>
<b>Bee-Kepping</b>	Promotion of bee- keeping for employment generation	Establishment of Bee keeping units and honey processing units.	DHO	Trainings proposed  Project proposed
<b>Vermi-composting</b>	Promotion of vermi-composting for employment generation and soil health improvement.	DHO/DDA/KVK will provide trainings on the efficient methods of vermicompost preparation. Financial assistance will be provided for establishment of 50 vermicompost units.	DHO/DDA	Project proposed
<b>Agro-Forestry Shishem &amp; Kikar mortality</b>	Fungal infection	Survey and identification	DFO	Demonstration proposed

## **Recommended interventions**

The preceding study of the present status of allied sectors with sustainability issues and gap analysis has paved the way for closing the gap for realising the stated vision. The farmers of the district are progressing steadily in all sort of allied activities. Be it dairy, poultry, fish, beekeeping, vegetables and even floriculture. Within the overall decreasing share of agriculture in gross domestic product, the share of allied activities is on the rise. With increasing pace of urbanisation and changing diet patters, this trend is likely to continue at a much faster pace. This calls for specific help and guidance to the farmer for much wider adoption of these allied activities for increased income and employment generation. Different extension activities suggested herein are specifically targeted to cater to the emerging future needs of the farmers engaged in different agri related professions. The training programs are aimed towards capacity building and entrepreneurship development of farmers to meet the enterprises production, marketing and post harvest value addition requirement. The training needs of staff of line departments on modern aspects of production, marketing and related fields is proposed in Table 5.1. The farmers training needs of allied activities for capacity building, skill up gradation and entrepreneurship development are covered in Table 5.2. Different site/crop/technology specific horticulture related demonstrations on IPM, INM, and varietal aspects are given in Table 5.3 to 5.5. Demonstrations on important aspect of other allied activities are briefed in Table 5.6. To educate and aware farmers on important growth stages and conducting activities, FFSs and group formation are suggested in Table 5.7 and 5.8. These proposed activities aptly complimented by special projects (proposed in chapter 6) will surely push the growth in allied sectors to a desired level.

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

(Phy- No. , 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
<b>Horticulture</b>	50	0.30	50	0.30	50	0.30	50	0.30	50	0.30	<b>250</b>	<b>1.5</b>
<b>Animal husbandry</b>	250	1.5	250	1.5	250	1.5	250	1.5	250	1.5	<b>1250</b>	<b>7.5</b>
<b>Fishery</b>	50	0.30	50	0.30	50	0.30	50	0.30	50	0.30	<b>250</b>	<b>1.5</b>
<b>Credit institutions</b>	100	0.60	100	0.60	100	0.60	100	0.60	100	0.60	<b>500</b>	<b>3.0</b>
<b>Total</b>	<b>450</b>	<b>2.7</b>	<b>450</b>	<b>2.7</b>	<b>450</b>	<b>2.7</b>	<b>450</b>	<b>2.7</b>	<b>450</b>	<b>2.7</b>	<b>2250</b>	<b>13.5</b>

Cost norms – Rs 600/ trainee/day



**Table 5.2 : 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

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		
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
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
	<b>Total</b>	<b>4140</b>	<b>16.56</b>	<b>4140</b>	<b>16.56</b>	<b>4140</b>	<b>16.56</b>	<b>4140</b>	<b>16.56</b>	<b>4140</b>	<b>16.56</b>	<b>20700</b>	<b>82.8</b>

**Table 5.3 : IPM Demonstrations in Horticultural crops Next Five Years (Phy Area covered in ha)**

**(Fin – Rs. In lakh)**

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	<b>0.4</b>	125	0.875	150	1.05	175	1.225	200	1.4	225	1.575	875	6.125
Floriculture	<b>0.4</b>	50	0.75	50	0.75	50	0.75	50	0.75	50	0.75	250	3.75
Total		175	1.05	200	1.4	225	1.575	250	1.75	275	1.925	<b>1125</b>	<b>7.875</b>

**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.
Tomato	<b>0.4</b>	20	1.0	25	1.25	30	1.5	35	1.75	40	2.0	<b>120</b>	<b>6.0</b>
Chillies	<b>0.4</b>	30	1.50	40	2.0	45	2.25	50	2.5	60	3.0	<b>225</b>	<b>11.25</b>
Cucurbits	<b>0.4</b>	10	0.5	10	0.5	10	0.5	10	0.5	10	0.5	<b>50</b>	<b>2.25</b>
Onion	<b>0.4</b>	30	1.5	35	1.75	40	2.0	45	2.25	50	2.5	<b>200</b>	<b>10.0</b>
Brinjal	<b>0.4</b>	30	1.5	35	1.75	40	2.0	45	2.25	50	2.5	<b>200</b>	<b>10.0</b>
carrot	<b>0.4</b>	30	1.5	35	1.75	40	2.0	45	2.25	50	2.5	<b>200</b>	<b>10.0</b>
Total		150	7.5	180	9.0	205	10.1	230	11.5	260	13.0	<b>975</b>	<b>48.75</b>

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

Crop	Area under each demon. (ha)	Varietals Demonstrations Projection											
		(Phy Area covered in ha, Fin – Rs. In lacs)											
		2007-08		2008-09		2009-10		2010-11		2011-12		Total	
Phy	Fin.	Phy.	Fin.	Phy.	Fin.	Phy	Fin.	Phy	Fin.	Phy.	Fin.		
Onion	<b>0.4</b>	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	<b>150</b>	<b>5.625</b>
Brinjal	<b>0.4</b>	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	<b>150</b>	<b>5.625</b>
Totato	<b>0.4</b>	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	<b>150</b>	<b>5.625</b>
Cole crops	<b>0.4</b>	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	<b>150</b>	<b>5.625</b>
Peas	<b>0.4</b>	20	0.75	25	0.95	30	1.125	35	1.3	40	1.50	<b>150</b>	<b>5.625</b>
Other veg. crops	<b>0.4</b>	50	1.875	50	2.375	50	2.8125	50	3.35	50	3.75	<b>250</b>	<b>14.06</b>
<b>Total</b>		<b>150</b>	<b>5.625</b>	<b>175</b>	<b>7.125</b>	<b>200</b>	<b>8.4375</b>	<b>225</b>	<b>9.85</b>	<b>250</b>	<b>11.25</b>	<b>1000</b>	<b>42.20</b>

**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.
<b>Dairy</b>	500	1.0	500	1.0	500	1.0	500	1.0	500	1.0	<b>2500</b>	<b>5.0</b>
<b>Poultry</b> (including backyard)	50	1.0	500	1.0	500	1.0	500	1.0	500	1.0	<b>2500</b>	<b>5.0</b>
<b>Sheep, goat and Piggery</b>	250	0.5	250	0.5	250	0.5	250	0.5	250	0.5	<b>1250</b>	<b>2.5</b>
<b>Mushroom</b>	50	2.5	50	2.5	50	2.5	50	2.5	50	2.5	<b>250</b>	<b>12.5</b>
<b>Fishery</b>	20	1.0	20	1.0	20	1.0	20	1.0	20	1.0	<b>100</b>	<b>5.0</b>
<b>Agro Forestry</b>	20	1.0	20	1.0	20	1.0	20	1.0	20	1.0	<b>100</b>	<b>5.0</b>
<b>Vermicompost</b>	100	2.0	100	2.0	100	2.0	100	2.0	100	2.0	<b>500</b>	<b>10.0</b>
<b>Total</b>	<b>1440</b>	<b>9.0</b>	<b>1440</b>	<b>9.0</b>	<b>1440</b>	<b>9.0</b>	<b>1440</b>	<b>9.0</b>	<b>1440</b>	<b>9.0</b>	<b>7200</b>	<b>45.0</b>

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

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

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	<b>100</b>	<b>20.0</b>
Poultry (including back yard)	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Goatry and Piggery	30	6.0	30	6.0	30	6.0	30	6.0	30	6.0	<b>150</b>	<b>30.0</b>
Fish Farming	20	4.0	20	4.0	20	4.0	20	4.0	20	4.0	<b>100</b>	<b>20.0</b>
Bee Keeping	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Agro Forestry	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Mushroom	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Vegetable crops	50	10.0	50	10.0	50	10.0	50	10.0	50	10.0	<b>250</b>	<b>50.0</b>
<b>Total</b>	<b>145</b>	<b>29.0</b>	<b>145</b>	<b>29.0</b>	<b>145</b>	<b>29.0</b>	<b>145</b>	<b>29.0</b>	<b>145</b>	<b>29.0</b>	<b>725</b>	<b>145.0</b>

**Cost norms- Rs. 0.20 lac/ FFS**

**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	<b>100</b>	<b>20.0</b>
Poultry (including back yard)	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Goatry and Piggery	10	2.0	10	2.0	10	2.0	10	2.0	10	2.0	<b>50</b>	<b>10.0</b>
Fish Farming	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Bee Keeping	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	<b>10</b>	<b>2.0</b>
Agro Forestry	2	0.4	2	0.4	2	0.4	2	0.4	2	0.4	<b>10</b>	<b>2.0</b>
Mushroom	5	1.0	5	1.0	5	1.0	5	1.0	5	1.0	<b>25</b>	<b>5.0</b>
Vegetable crops	50	10.0	50	10.0	50	10.0	50	10.0	50	10.0	<b>250</b>	<b>50.0</b>
Total	99	19.8	99	19.8	99	19.8	99	19.8	99	19.8	<b>495</b>	<b>99.0</b>

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



## Projected outcome and growth rate during XI Five Year PAn

**Table 5.8: Growth trend of buffalo and its milk production and productivity in the District**

Name of Animal	Normal 2006-07			2007-08			2008-09 (Projected)			2009-10 (Projected)			2010-11 (Projected)			2011-12 (Projected)		
	No. of animals in milk (N)	Annual Milk Production (P)	Av. daily milk yield (Y)	N	P	Y	N	P	Y	N	P	Y	N	P	Y	N	P	Y
Buffalo	86863	201.4	6.35	90337	209.44	6.61	93950	217.8	6.87	97708	226.5	7.14	101016	235.6	7.42	105057	245.0	7.71

Annual Milk Production (P) in million litres, Av. daily milk yield(Y) in litres

**Table 5.9: Projected outcome and growth rate during XI Five Year Plan (hort. /veg. crops)**

(Area – ha, Production – 000 q, productivity – q/ha)

S. 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
	<b>Fruits</b>																		
1	Ber	49	2000	408.16	51	21.65	424.5	53	23.40	441.5	60	27.55	459.2	70	33.42	477.5	100	47.83	478.3
2	Guava	44	2100	477.27	50	24.82	496.4	70	36.13	516.2	80	42.96	536.8	90	50.25	558.3	100	58.06	580.6
	<b>Floriculture</b>																		
1	Marigold	385	3110	80.77	400	33.60	84.0	450	39.33	87.4	450	40.90	90.9	475	448.8	94.5	500	49.15	98.3
	<b>Vegetables</b>																		
1	onion	1732	38490	222.22	1800	415.98	231.1	1800	432	240.3	1800	449.8	249.9	1800	467.6	259.8	1800	486.2	270.1
2	Cucurbits	1238	16702	134.91	1300	182.39	140.3	1300	189.67	145.9	1300	197.2	151.7	1300	205.1	157.8	1300	213.3	164.1
3	Radish	1060	14600	137.73	1200	171.84	143.2	1200	178.68	148.9	1200	185.8	154.8	1200	193.2	161.0	1200	200.9	167.4
4	Carrot	865	13900	160.69	1000	167.1	167.1	1000	173.8	173.8	1000	180.7	180.7	1000	187.9	187.9	1000	195.4	195.4
5	Cole Crops	700	6420	91.71	750	71.55	95.4	750	69.15	99.2	800	82.56	103.2	800	85.84	107.3	900	100.44	111.6
6	Tomato	530	6740	127.17	550	72.71	132.2	550	75.62	137.5	575	82.22	143.0	575	85.50	148.7	600	92.76	154.6
7	Peas	500	6870	137.4	520	74.31	142.9	540	80.24	148.6	560	86.52	154.5	580	93.21	160.7	600	100.26	167.1
8	Brinjal	410	4700	114.63	450	53.64	119.2	450	55.75	123.9	450	57.96	128.8	450	60.25	133.9	450	62.64	139.2
9	Chillie	340	2488	73.17	360	27.39	76.1	380	30.05	79.1	400	32.92	82.3	420	35.91	85.5	440	39.12	88.9
10	Bhindi	200	2060	103.00	220	23.56	107.1	240	26.73	111.4	260	30.10	115.8	280	33.71	120.4	300	37.76	125.2

## **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 Jhajjar. 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

### A) Projects for Agriculture Sector Development

#### 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
<p><b>Project goal-</b> Development of human resource for raising farm productivity</p> <p><b>Purpose-</b> To strengthen facilities at district and block level for conducting effective training programmes for farmers and field staff.</p> <p><b>Output-</b> Well informed, skilled and upgraded farmers and field staff for rationale decision making in agriculture and allied fields.</p>	<p>Upgradation in knowledge and skills of the farmer and staff.</p> <p>Increase in production, productivity and profitability of crops and allied enterprises.</p>

**i) Cost For Strengthening Infrastructure at KVK (at district level)**

<b>Sr. No.</b>	<b>Infrastructure</b>	<b>No.</b>	<b>Cost (in lacs)</b>
1	Well Equipped Training Hall	1	50.0
2	Information Technology Lab	1	25.0
3	Automatic Weather Station	1	8.0
	<b>Total</b>		<b>83.0</b>

**ii) Cost For Strengthening Infrastructure at FIAC (block level)\***

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

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

**iii) Cost for strengthening of labs at district level**

<b>Sr. No.</b>	<b>Laboratory</b>	<b>No.</b>	<b>Cost (in lacs)</b>
1	Soil testing lab	1	20.0
	<b>Total</b>		<b>20.0</b>

#### **iv) Strengthening / opening veterinary hospitals/ facilities**

<b>Sr. No.</b>	<b>Vety. Hospital/ facilities</b>	<b>No.</b>	<b>Cost (in lacs)</b>
1	Veterinary Hospitals	50	500.0
2	Crystoscopic kits	50	50.0
3	A.I.Kits	50	50.0
	<b>Total</b>		<b>600.0</b>

#### **2. Project for Amelioration of water logged soils affected with salinity**

The twin problems of water logging and soil salinity are threatening the sustainability of agricultural production in large parts of Haryana. In 1985 an UNDP/FAO study concluded that 400,000 ha of land were threatened. In 1998, the Drainage Master Plan of Haryana Government revealed that almost 500,00 ha of highly productive land were under threat of degradation because of the rising water table. This is about a quarter of the irrigated lands in the state. The gravity of the situation increases manifold in most of the endangered area because of brackish or saline ground water. The area under critical water table depth (with in 3 m of the surface) is expected to increase dramatically in the coming years if no curative steps are taken. There are several reasons for development of salinity in the soils such as:-

- ▶ Excessive and uncontrolled irrigation
- ▶ Accumulation of salts in the top layer due to evapo-transpiration in arid conditions
- ▶ Water logging conditions in perennial river basins/irrigation sources of due to seepage
- ▶ Excessive use of chemical fertilizers containing chlorides, sulfates etc.

► Poor drainage conditions

The growing problem of salinity alkalinity needed to be minimized or eliminated as early as possible since it is growing at the rate of 10% every year. Soil salinity has become an acute problem rendering crop productivity to decline or making the soil unfit for cultivation. Irrigation has both sides of bane and boon. Saline soils contain soluble salts which impair the soil productivity. Such soils can normally be identified by the presence of white crusts of salts on the surface of the land area and poor crop growth. Internal drainage of such soils will not be bad. By opening adequate drains, such soils can be improved. Drainage becomes a problem when soil is water logged. In such soils, the aeration will be a limiting factor and microbial activities will be hindered and hence removal of excess water from such water logged areas becomes very essential.

On the other hand, sodic soils containing excess sodium become extremely water logged as the soil porosity is lost and water does not percolate down easily/ quickly. In case of excess sodium contents of the soil, it has to be treated with soil amendments such as gypsum, sulphur etc. and then salts have to be drained. In summary, the basic requirement is provision of adequate and appropriate drainage system.

The problem of saline soils was studied from various angles and concluded that unless corrective measures are adopted at appropriate time, vast tracts of so called fertile soils will become barren leading to unproductively and under production. It is the ultimate responsibility of every one involved in rural development to save the soil from the bad effects to sustain the growing population.

**Benefits of drainage:-**

Flooding and loss of seeds and fertilizers are largely eliminated. Fields dry up quickly soon after rains and thus making the land ready for cultivation. It avoids permanently ponded areas and swamps etc. It removes excess water, salinity and alkalinity from the soils. It keeps the soil pores open and thus increase both infiltration and permeability rates of the soil. Where underground drainage is practiced, there will be a better physical condition of the soil that permits vigorous and deeper root growth and as a result drought



tolerance. Improves microbial activity and thus better health of soil. It also reduces certain crop diseases. Potential benefits and high return. The subsurface drainage system is perceived as costly. However, considering the huge loss to yield and income, the investment is highly viable and prudential.

Crop wise estimated economic loss depends on salinity levels (ECe)- say

Salinity level (ECe)	Absolute level Income loss (Rs/ha)	
	Paddy	Wheat
8	963	1146
12	1506	2186
16	1882	3149
20	2166	3851

Rs.379.45 crore is the cost of subsurface drainage. It also has to be supplemented by other technical and extension measures of educated farmers an judicious use of management of irrigation water curative measures of soil amendment though Trainings, demonstrations, field days, exposures visit, supply of salt tolerant seeds of crops (recommended over).

### Cost of the project

#### Total land to be reclaimed 1500ha

Component	Cost(Lacs Rupees)
Soil survey, testing and land leveling	40.00
Cost of the laying of drainage pipes	240.00
Extension activities	16.6
Monitoring & Evaluation	6.0
<b>Total Cost</b>	<b>302.6</b>

### **Year wise budget required for land reclamation**

Component	2007-08	2008-09	2009-10	2010-11	2011-12
Soil survey, testing and land leveling	8	8	8	8	8
Cost of the laying of drainage pipes	48	48	48	48	48
Extension activities	3.32	3.32	3.32	3.32	3.32
Monitoring & Evaluation	1.2	1.2	1.2	1.2	1.2
Total Cost	60.52	60.52	60.52	60.52	60.52

### **3. Project for Rain water Harvesting**

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 400 mm (22 inches). 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.

#### Year wise budget required to make recharging structures

Component	2007-08	2008-09	2009-10	2010-11	2011-12	TOTAL
Structures to be made	50	50	50	50	50	250
Budget required (in lakhs)	50	50	50	50	50	250

#### 4. Project on Reclamation of Alkali soils & waters

The soils which have Exchangeable sodium percentage (ESP) more than 15 and Electrical conductivity less than 4.0 m m hos/cm at 26° c are called alkali soils. These types of soils generally occur in semi arid and arid regions in small irregular areas. The exchangeable sodium present in alkali soils may have marked effect on physical and chemical properties. As the ESP increases, the soils tend to become more dispersed. The PH reading may increase, sometimes becoming as high as 10. This alkalinity deteriorates the soil fertility. In such soil seed germination is severely affected, plants remain stunted and ultimately land to low yield thus causes heavy loss of national wealth. In such soil due to dispersion of the day water does not percolate down easily. To reclaim such soils first we should take samples and get them analyzed for their gypsum requirement. Application of gypsum based on gypsum requirement is the only way for their reclamation.

#### Logical framework matrix- Reclamation of Alkali Soils in District Jhajjar

Narrative Summary	Objectively verifiable indicators
<p><b>Project goal-</b> To reclaim Alkali soils through application of gypsum.</p> <p><b>Purpose-</b> To improve the fertility and productivity of the soil. Leaching the extra salts of sodium. Improve the physic chemical properties of the soils.</p> <p><b>Output-</b>Increase in the production of the crops and thereby increase in income of the farmers. The soil will be made suitable for crop production. The ESP will be reduced.</p>	<p>To reclaim such soils first we should take samples and get them analyzed for their gypsum requirement. Application of gypsum based on gypsum requirement is the only way for their reclamation. After that soils are tested for pH, EC, SAR or ESP to see whether soils are reclaimed or not.</p>

#### Cost of Project to reclaim 2500 ha of Alkaline soils

Component	Cost ( Lacs Rupees)
Soil testing	16.0
Soil survey and land leveling	6.15
Gypsum application	31.5
Labor cost	3.0
Monitoring & Evaluation	11.5
<b>Total Cost</b>	<b>68.65</b>

**Year wise budget required to reclaim Alkaline soils**

Component	2007-08	2008-09	2009-10	2010-11	2011-12	TOTAL
Area to be reclaimed (ha)	500	500	500	500	500	2500
Gypsum requirement (ton)	3400	3400	3400	3400	3400	17000
Total cost of the project(in lacs) (including other expenses)	14.96	14.96	14.96	14.96	14.96	74.8

**Logical framework matrix-**

**5. To improve Soil health through Green Manuring in District Jhajjar**

Narrative Summary	Objectively verifiable indicators
<p><b>Project goal-</b> To improve soil health through green manuring.</p> <p><b>Purpose-</b> To improve the fertility and productivity of the soil. Improve the physic chemical properties of the soils. To increase in the organic matter of the soils.</p> <p><b>Output-</b>Increase in the production of the crops and thereby increase in income of the farmers. Improvement in the soil organic matter.</p>	<p>The effect of green manuring on soil health and its impact on succeeding crop will be studied in 10 % of the fields covered under the project by involving PRIs , Deptt. Of Agri. and KVK every year.</p>

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Area to be covered under green manuring(ha)	10000	10000	10000	10000	10000	50000
Dhaincha seed* to be required@ 30 kg/ha (q)	3000	3000	3000	3000	3000	15000
Cost of the seed @ Rs. 1500/q (in lacs.)	45.0	45.0	45.0	45.0	45.0	225.0
Subsidy @ 75%	33.75	33.75	33.75	33.75	33.75	168.7
Monitoring and evaluation	0.5	0.5	0.5	0.5	0.5	2.5
Total cost						171.2

\* The extension activities will be covered under INM training programme

**Logical framework matrix-**

**6. To increase the acreage and production of pulses in paddy- wheat cropping system by introducing summer moong.**

Narrative Summary	Objectively verifiable indicators
<p><b>Project goal-</b> To increase the availability of pulses.</p> <p><b>Purpose-</b> To increase pulse production by improve the fertility and productivity of the soil under paddy- wheat system. Improve the physic chemical properties of the soils. To increase in the organic matter of the soils.</p> <p><b>Output-</b>Increased pulse production with increase in farm income with additional benefit of improvement in the soil organic matter.</p>	<p>Impact study of summer moong on comparative profitability of paddy wheat rotation and soil health status will be conducted by KVK. 25 % of paddy area should be covered under summer moong at the end of project.</p>

**Cost of the Project:**

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Area under paddy – wheat cropping system(ha)	17000	17000	17000	17000	17000	
Area to be covered under green manuring(ha)	4000	4000	4000	4000	4000	20000
Moong seed to be required@ 30 kg/ha (q)	12000	1200	1200	1200	1200	6000
Cost of the seed @ Rs. 6000/q (in lacs.)	72.0	72.0	72.0	72.0	72.0	360.0
Subsidy required @ 75%	54.0	54.0	54.0	54.0	54.0	54.0
Budget required for Extension activities, Monitoring and evaluation(in lacs)	0.5	0.5	0.5	0.5	0.5	2.5
<b>Total Cost of the Project</b>						<b>272.5</b>

## **7. Project:- Increasing agricultural Productivity of Land and Water Resources through Laser Levellers (RCTs.)**

### **Objective:-**

- ▶ To increase productivity of crops by increasing efficiency of land and water resources.
- ▶ To Enhance cultivated area
- ▶ To Reduce production costs by enhancing cultivation efficiency.
- ▶ Alleviate poverty in rural areas through better farm returns and employment generation.

Background:- It is an established fact that 20 to 25% water is lost during irrigation due to uneven fields and poor farm designing. This leads to excessive application to low-lying areas and under irrigation of higher spots. Over irrigation leaches soluble nutrients from the crop root zone, makes the soil less productive and degrades ground water quality. On the other hand, under irrigation of elevated parts of the fields results in accumulation of salts in such patches besides causing water stress and injurious effects of applied fertilizers. The fields being not properly levelled, cause wastage of land, result in low irrigation efficiencies and ultimately much lesser yields are obtained than the potential. In the present scenario of decreasing irrigation water availability, it has become imperative to develop strategies for efficient utilization of this scarce and valuable resource.

Solution:- Solution to all above mentioned impediments to higher yield is modern land levelling technology i.e. the precision Land Levelling Technology (PLL).

What is PLL:- PLL is a process of grading and smoothing the land to a precise and inform plane surface at grade or no grad (zero slope) with variation of less than one inch i.e. + 20 mm (2 cm)

### **Benefits of PLL over traditional method**

Traditional method of PLL involves earth movement with bucket type soil scrapers and

tractor mounted rear blades which in very laborious and expensive to finish the land surface to exact grade. Use of laser technology in precision lane levelling is a very useful development. It minimize the cost of operation, ensures better degree of accuracy in much lesser time, save irrigation water, ascertain uniform seed germination, increase fertilizer use efficiency and resultantly enhances crop yields.

- ▶ Increase in crop yield as much as 25 per cent.
- ▶ Reduction in time of Irrigation and amount of water by upto 50 per cent
- ▶ Enhancement of the crop area by about 2 per cent
- ▶ Control of water- logging and salinity
- ▶ Facilitation in efficient use of farm machinery
- ▶ More productive utilization of seeds, fertilizers and other non-water inputs.

Project cost and Area Levelling (Rs. In Lacs)

Year	Units (No. of L. Levellers)	Total Cost Rs. 3.6 Lac/unit	Project cost @75% subsidy 2.7 Lac/unit from RKVY	<b>Total Cost of Project</b>
2007-08	10	36-00	27-00	27-00
2008-09	20	72-00	54-00	54-00
2009-10	20	72-00	54-00	54-00
2010-11	30	108-00	81-00	81-00
2011-12	50	180-00	135-00	135-00
<b>Total</b>	<b>140</b>	<b>468-00</b>	<b>351-00</b>	<b>351-00</b>

Total cost of Project Subsidy component @ 75% of cost

Farmers are to be given 75% subsidy from RKVY)

Over a period of five years about 36000 ha. Area can be levelled under the project which will result into.



- ▶ Saving of about 24 thousand million Acre feet (MAF) of irrigation water
- ▶ Increase in crop yield by about 20 per cent
- ▶ Enhancement of irrigated area by about 2 per cent from same amount of irrigation water
- ▶ Increased efficiency of seed, fertilizer and other inputs thus reducing cost of cultivation and increasing factor productivity

## 8. Seed Production for achieving desired Seed Replacement Ratio

### A. Wheat

Current seed replacement ratio	=16 %
Desired seed replacement ratio	=35%
Certified seed availability	=17000qtls.
Additional certified seed required (as per desired seed replacement rate)	=20000 qtls
Project to produce desired certified seed	
No. of villages selected from each block for seed production	=5
Total villages selected from the district	=25
Area to be brought under wheat seed programme from each selected village	=20 ha
Total area covered under each block	=20x5=100 ha
Total area covered in the district	=100x5=500 ha

### Cost:

Foundation seed to seed to be supplied to the farmers for seed production	=500 qtls
Cost of each demonstration	= Rs. 5000

**Total cost**                      **=5000x500x5=12500000**  
**(125 lacs)**

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Area (ha)	500	500	500	500	500	2500
Financial Requirement* @ Rs.5000/ ha	25.00	25.00	25.00	25.00	25.00	125.00
Estimated Seed Produced @42.0 q/ha	10500	10500	10500	10500	10500	10500
<b>Total Cost of the Project(lacs)</b>						<b>125.00</b>

\* includes cost of seed, fertilizers, IPM & extension activities

### A. Raya

Project to produce desired certified seed

No. of villages selected from each block for seed production =5

Total villages selected from the district =25

Area to be brought under raya seed programme from each selected village =12 ha

Total area covered under each block =12x5=60 ha

Total area covered in the district =60x5=300 ha

### Cost:

Foundation seed to seed to be supplied to the farmers for seed production =12.0 qtls

Cost of each demonstration = Rs. 5000

**Total cost =5000x300x5=7500000  
(75 lacs)**

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Area (ha)	300	300	300	300	300	1500
Financial Requirement* @ Rs.5000/ ha	15.00	15.00	15.00	15.00	15.00	75.00
Estimated Seed Produced @8 q/ha	1200	1200	1200	1200	1200	6000
<b>Total Cost of the Project(lacs)</b>						<b>75.00</b>

\* includes cost of seed, fertilizers, IPM & extension activities

### **9.Project proposal for the development of Panchayat/ Shyamlat Land for 10 villages and for 5 yeas (up to 2011-12)**

The following work need to be taken into consideration for the development of Panchayat / Shyamlat land:-

*(It is more or less on the same pattern as that of Haryali Scheme.)*

<b>Work/activity</b>	<b>Cost(lacs)</b>
1. Water harvesting structure	195.0
2. Land leveling and stump uprooting	99.00
Roof rain water harvesting recharge structure	69.0
Plantation of forest trees on drainage line	18.00
5. Underground pipe line	12.50
6. Treatment of water logged area	120.00
7. Extension activities	2.50
<b>Total cost (lacs)</b>	<b>507..00</b>

## B. Project for Allied Sector Development

### 1. Project on Farm and Animal Disposal Pits

For any agricultural production system the soil health is the key factor. Due to the over exploitation of land in Sonipat particularly in paddy- wheat crop rotation, the soil has become low in organic carbon and deficient in other major and minor plant nutrients which resulted in stagnation of crop productivity. This problem has aroused mainly due to the breakage of cycle between soil, plants and animals. In the district there are 69182 cows, 364560 buffaloes, 14551 sheep, 9896 goats and 16000354 poultry birds. Total livestock produces plant nutrients worth crores of rupees. More than 50 % of these nutrients are wasted due to improper disposal and storage of farm yard wastes. The farm yard waste is generally stored on the sides of roads and water ponds. It not only creates sanitation problem in villages but plant nutrients worth million of rupees are wasted also. The water stored in the village ponds is destroyed and becomes unsuitable for animal use. The animals using this water face health threats. The improper disposal of farm wastes becomes breeding centre for mosquitoes and other disease causing organisms. Thus causing a serious threat to the human and livestock health .Establishment of 20 manure pits is proposed in each village of the district during the 11<sup>th</sup> five year plan to overcome the problems stated above. For digging pits for suitable conversion of farm waste into good quality manure to improve soil health and crop productivity Rs. **35.0 lac** will be required for **7000** pits.

**Table - Proposal for farm and animal disposal pits**

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
No. of Pits to be prepared	1400	1400	1400	1400	1400	7000
<b>Funds required @ Rs.500/pit (lacs)</b>	<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	<b>25.0</b>
<b>Total Cost of the Project</b>						<b>25.00 lacs</b>

## 2. Conservation of murreh buffalo breed through Community Bulls

Narrative Summary	Objectively verifiable indicators
<p><b>Project goal-</b> To improve the breed of murreh buffalo and to increase the productivity</p> <p><b>Purpose-</b>To increase the milk production and conserve the murreh buffalo breed.</p> <p><b>Output-</b> Decrease the problem of repeat breeding in buffalo. Reduction in calving interval. Increased milk productivity.</p>	<p>Supply of 30 bulls to gram panchayats every year.</p> <p>Milk productivity be increased from 4.5 lit/animal/day to 6.5lit/animal/day within the plan period.</p>

**Table 2.1: Cost of project on provision of Community Bulls**

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number	50	50	50	50	50	250
Bull Cost @1.0 lac	50.0	50.0	50.0	50.0	50.0	250.0
Bull maint. Cost 0.25/bull/yr	12.5	12.5	12.5	12.5	12.5	62.5
<b>n lacs)</b>	<b>62.5</b>	<b>62.5</b>	<b>62.5</b>	<b>62.5</b>	<b>62.5</b>	<b>312.5</b>

## Logical framework matrix-

### 3. Supplementing mineral mixture to dairy animals in District Jhajjar

Narrative Summary	Objectively verifiable indicators
<p><b>Project goal-</b> To increase milk yield and to reduce infertility and inter calving period in animals.</p> <p><b>Purpose-</b> To over come the deficiency of the essential minerals in order to increase milk yield and to improve the general health of the dairy animals to overcome infertility , repeat breeding and delayed calving.</p> <p><b>Output-</b>Increase in the production of the milk and thereby increase in income of the farmers. Reduction in inter calving period.</p>	<p>Out of 10000 animals covered under the project each year (by involving Gram Sabha members and field level Vety. Personnels for general health improvement and increase in milk yield.</p>

#### Cost of the Project: 37.5 lacs

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
No. of lactating animals	100000	100000	100000	100000	100000	500000
No. animals covered under mineral mixture	10000	10000	10000	10000	10000	50000
Mineral mixture required @ 50g/day/animals for 300 days(kg)*	150000	150000	150000	150000	150000	750000
Cost @ Rs. 50/kg (lacs)	75.0	75.0	75.0	75.0	75.0	375.0

\* Mineral mixture will be supplied to farmers free of cost.

## Logical framework matrix-

### 4. Deworming of dairy animals in District Jhajjar

Narrative Summary	Objectively verifiable indicators
<p><b>Project goal-</b> To reduce the calf mortality and improve the general health.</p> <p><b>Purpose-</b>To increase the number of animal for enhanced milk production. To improve the general health of the dairy animals.</p> <p><b>Output-</b>Increase in the production of the milk and thereby increase in income of the farmers. Reduction in calf mortality</p>	<p>The impact of deworming project on calf mortality rate and general health of the animals will be studied through field survey by involving PRIs, Vety. Staff and KVK.</p>

#### Cost of the Project: 48.0 lacs

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
No. animals covered under dewormer	16000	16000	16000	16000	16000	80000
Cost @ Rs. 60/animal (lacs)	9.6	9.6	9.6	9.6	9.6	48.0

\* The Dewormer will be supplied to farmers free of cost at their door step.

## 5 . Income and employment generation through agro based vocations

### A. Vermi-composting

Most of plant residues and cow dung are either burnt or put at undesired places leading to soil and water pollution on one hand and loss of plant nutrients on other hand in terms of worth billion of rupees. Vermicomposting is an excellent method for recycling the farm wastes and cow dung into valuable organic manure.

#### Proposal for Vermi-compost Units to be established

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number	10	10	10	10	10	50
<b>Financial help @Rs. 0.30 lacs/unit</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>15.0</b>
<b>Total Cost of the Project(lacs)</b>						<b>.00</b>

### B. Bee Keeping

Bee keeping is very important allied vocational enterprise in agriculture which can generate the sustained income & employment in farm sector. It can be easily done by the women and other family members in a very small area that means it does not require land. It has been observed in various studies in district Jhajjar that a income of Rs. 10000 to 12000 may be realised with a small unit of bee keeper having around 10 boxes.



### Proposal for bee keeping units to be established

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number	30	30	30	30	30	150
<b>Financial help @ 0.2 lacs/unit</b>	<b>6.0</b>	<b>6.0</b>	<b>6.0</b>	<b>6.0</b>	<b>6.0</b>	<b>30.0</b>
<b>Total Cost of the Project(lacs)</b>						<b>30.00</b>

### 6. Agro- Forestry

Jhajjar district has a very small area under forest which is nearly 2% of the total area. The forest department has been engaged in planting the new trees to increase the area under forest during last two decades. A special mission of social forestry was started in the district Jhajjar to increase the area under forest. Still now, the area under forest has not crossed 10% of the desired level of 25% of total area under forest ( as per the National Policy 1989) To increase the farm income in long run and proper ecological balance it is the need of the our to grow more forest trees on the farmers fields. More training and demonstrations may be conducted for plantation of Eucalyptus, poplar and other medicinal plants like neem etc. in the 11th Five Year Plan.

#### Proposal for demonstrations on Clonal Eucalyptus/Poplar

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number of demonstration	30	30	30	30	50	170
<b>Cost/ demo @ Rs. 0.1lac</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>5.0</b>	<b>17.0</b>
<b>Total Cost of the Project(lacs)</b>						<b>17.0</b>

## **7. Conservation of Village ponds as a source of drinking water for animals**

The village ponds are important source of water particularly for animals . With the passing of time and increase in population the condition of village ponds deteriorated beyond repair. Till now no serious efforts have been made to conserve these ponds on scientific lines for the purpose they were made. 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. 750 lac is prepared for conserving 150 ponds in the district Jhajjar

**Table 7.1: Cost of project on conservation of Village ponds**

<b>Description</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>
Number	50	50	50	50	50	250
<b>Funds Req.@ Rs.5 lacs</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>1250</b>

## **8. 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.

The proposal is put forward for installation of SPV pumps in the district for agriculture use. The availability of good quality ground water is at shallow depth in Jhajjar district. The approach is targeted to install one SPV unit in each village in a calendar year.

**Table 8.1: Cost of project for SPV Installation**

Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Number of SPV units	250	250	250	250	250	1250
Cost @ 3.5 lac/unit	875	875	875	875	875	4375
<b>Subsidy @ 90%(in lacs)</b>	<b>472.5</b>	<b>472.5</b>	<b>472.5</b>	<b>472.5</b>	<b>472.5</b>	<b>2362.5</b>

## 9. Survey, Monitoring and Evaluation

A strong database is always required for planning, monitoring and evaluation of any project or programme. Timely survey monitoring and evaluation are the backbone

of any extension and research programme in agriculture & allied sector. It will reduce the costs of the project and increase the profitability. The schedule under this head to achieve the desired goal in 11th five year plan is as follows:

S. No.	Survey, assessment, monitoring and evaluation of	Financial requirement (in lacs)					
		2007-08	2008-09	2009-10	2010-11	2011-12	Total
1	Technologies and practices affecting the productivity	6.0	6.0	6.0	6.0	6.0	30.0
2	Yield performances of crops and varieties	7.0	7.0	7.0	7.0	7.0	35.0
3	Adoption pattern of crucial technologies across the regions and catagories of farmers	7.0	7.0	7.0	7.0	7.0	35.0
4	Incidence and occurrence of insect, pest and weeds	5.0	5.0	5.0	5.0	5.0	25.0
5	Resistance development and sustainability issues	5.0	5.0	5.0	5.0	5.0	25.0
6	Ground water quality in relation to nitrate and heavy metal contamination	5.0	5.0	5.0	5.0	5.0	25.0
7	Economics of crops , crop rotations and farming systems	5.0	5.0	5.0	5.0	5.0	25.0
8	Economic and social progression	5.0	5.0	5.0	5.0	5.0	25.0
	<b>TOTAL</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>225.0</b>

## **10 Project proposal training for training of para technical staff at regional/ state level**

The proposals are meant for stimulating the extension and developmental activities by providing necessary technical back up, specialized services and analytic support with respective fields. The proposals are as under-

- i) Training facilities for para technical staff dealing in
  - Soil and water analysis
  - A.I. Services
  - Nursery management
- ii) Establishment of organic certification lab
- iii) Establishment of poultry hub

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

**(Phy. Nos/ha, Fin.-Rs. in Lac)**

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	850	5.1	850	5.1	850	5.1	850	5.1	850	5.1	<b>4250</b>	<b>25..5</b>
	Farmers	10300	35.8	10300	35.8	10300	35.8	10300	35.8	10300	35.8	<b>51500</b>	<b>179.</b>
2.	Demonstrations												
	Varietal	3070	153.5	3070	153.5	3070	153.5	3070	153.5	3070	153.5	<b>15350</b>	<b>767.5</b>
	INM	2695	134.75	2695	134.75	2695	134.75	2695	134.75	2695	134.75	<b>13225</b>	<b>673.75</b>
	IPM	330	16.5	330	16.5	330	16.5	330	16.5	330	16.5	<b>1650</b>	<b>82.5</b>
	RCTs	1250	62.5	1250	62.5	1250	62.5	1250	62.5	1250	62.5	<b>6250</b>	<b>312.5</b>
3.	Other activities												
	FFSs	87	17.4	87	17.4	87	17.4	87	17.4	87	17.4	<b>435</b>	<b>87.0</b>
	Group formation	57	11.4	57	11.4	57	11.4	57	11.4	57	11.4	<b>285</b>	<b>57.0</b>
	<b>Total</b>		<b>436.95</b>		<b>436.95</b>		<b>436.95</b>		<b>436.95</b>		<b>436.95</b>		<b>2184.75</b>

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.
4.	B. Special Project												
	Strengthening of Training Centre	1	83										
	a) District level (KVK)											<b>1</b>	<b>83.0</b>
	b) Block level (FIAC0	5	200									<b>5</b>	<b>200.0</b>
	c) Strengthening of lab	1	20									<b>1</b>	<b>20.0</b>
	d) Strengthening of Vety.hospital	150	600									<b>150</b>	<b>600.0</b>
	Amelioration of water logged & saline soils		60.52		60.52		60.52		60.52		60.52		<b>302.6</b>
	Rain water harvesting	50	50	50	50	50	50	50	50	50	50	<b>250</b>	<b>250.0</b>
	Reclamation of Alkali soils	500	14.96	500	14.96	500	14.96	500	14.96	500	14.96	<b>2500</b>	<b>74.80</b>

Sr. No.	Activity/Projects	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Improving soil health through Green Manuring	10000	34.25	10000	34.25	10000	34.25	10000	34.25	10000	34.25	<b>50000</b>	<b>171.25</b>
	Introduction of Sumer Moong	4000	54.5	4000	54.5	4000	54.5	4000	54.5	4000	54.5	<b>20000</b>	<b>272.5</b>
	Laser levelling	10	27.0	20	54.0	20	54.0	30	81.0	50	135.0	<b>130</b>	<b>351.0</b>
	Seed production												
	a) Wheat	500	25.0	500	25.0	500	25.0	500	25.0	500	25.0	<b>2500</b>	<b>125.0</b>
	b) Raya	300	15.00	300	15.0	300	15.0	300	15.0	300	15.0	<b>1500</b>	<b>75.0</b>
	<b>Total</b>		<b>1184.23</b>		<b>308.23</b>		<b>308.23</b>		<b>335.23</b>		<b>389.23</b>		<b>2525.15</b>
	<b>G.Total (A+B)</b>		<b>1621.18</b>		<b>745.18</b>		<b>745.18</b>		<b>772.18</b>		<b>826.18</b>		<b>4709.9</b>



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

**(Phy. -In Nos/ha, Fin.-Rs. In Lac)**

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	<b>2250</b>	<b>13.5</b>
	Farmers	4140	16.56	4140	16.56	4140	16.56	4140	16.56	4140	16.56	<b>20700</b>	<b>82.8</b>
2.	Demonstrations												
	A)Horticulture												
	Varietal	150	5.62	175	7.12	200	8.44	225	9.85	250	11.25	<b>1000</b>	<b>42.28</b>
	INM	150	7.5	180	9.0	205	10.1	230	11.5	260	13.0	<b>975</b>	<b>51.10</b>
	IPM	175	1.05	225	1.57	225	1.57	250	1.75	275	1.92	<b>1125</b>	<b>7.86</b>

Sr. No.	Sector/Activity/Projects	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	RCTs	1440	9.0	1440	9.0	1440	9.0	1440	9.0	1440	9.0	<b>7200</b>	<b>45.0</b>
3.	Demonstration on Allied Sector Activities												
	FFSs (All Allied Sectors)	145	29.0	145	29.0	145	29.0	145	29.0	145	29.0	<b>725</b>	<b>145.0</b>
	Group formation	99	19.8	99	19.8	99	19.8	99	19.8	99	19.8	<b>495</b>	<b>99.0</b>
	<b>Total</b>		<b>91.23</b>		<b>94.75</b>		<b>97.17</b>		<b>100.16</b>		<b>103.23</b>		<b>486.54</b>

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.
4.	B. Special Project												
	Animal Husbandry (conservation of Murrah buffalo)	50	62.5	50	62.5	50	62.5	50	62.5	50	62.5	<b>250</b>	<b>312.5</b>
	Supplementing Mineral Mixture	10000	75.5	10000	75.5	10000	75.5	10000	75.5	10000	75.5	<b>50000</b>	<b>377.5</b>
	Deworming	16000	9.6	16000	9.6	16000	9.6	16000	9.6	16000	9.6	<b>80000</b>	<b>48.0</b>
	Farm & Animal disposal Pits	1400	5.0	1400	5.0	1400	5.0	1400	5.0	1400	5.0	<b>7000</b>	<b>25.0</b>
	Vermicomposting	10	3.0	10	3.0	10	3.0	10	3.0	10	3.0	<b>50</b>	<b>15.0</b>
	Bee Keeping	30	6.0	30	6.0	30	6.0	30	6.0	30	6.0	<b>150</b>	<b>30.0</b>
	Agro Forestry	30	3.0	30	3.0	30	3.0	30	3.0	50	5.0	<b>170</b>	<b>17.0</b>

Sr. No.	Sector/Activity/Projects	2007-08		2008-09		2009-10		2010-11		2011-12		Total	
	Development of Panchayat Land		101.4		101.4		101.4		101.4		101.4		<b>507.0</b>
	Conservation of village pond	50	25.0	50	25.0	50	25.0	50	25.0	50	25.0	<b>250</b>	<b>125.0</b>
	Installation of Solar photovoltaic (SPV) pumps	250	472.5	250	472.5	250	472.5	250	472.5	250	472.5	<b>1250</b>	<b>2362.5</b>
	Survey, Monitoring & Evaluation		45.0		45.0		45.0		45.0		45.0		<b>225.0</b>
	<b>Total</b>		<b>808.5</b>		<b>808.5</b>		<b>808.5</b>		<b>808.5</b>		<b>810.5</b>		<b>4044.5</b>
	<b>G. Total (A+B)</b>		<b>899.73</b>		<b>903.25</b>		<b>905.67</b>		<b>908.66</b>		<b>913.73</b>		<b>4531.04</b>

**Table : Financial Programme Proposed under CDAP during XI Plan (Rs. In lacs)**

Name of work	2007-08	2008-09	2009-10	2010-11	2011-12	Total
	Fin.	Fin.	Fin.	Fin.	Fin.	Fin.
A). Extension Activities						
Agriculture	436.95	436.95	436.95	436.95	436.95	<b>2184.75</b>
Allied sectors	91.23	94.75	97.17	100.16	103.23	<b>486.54</b>
<b>Total</b>	<b>528.18</b>	<b>531.70</b>	<b>534.12</b>	<b>537.11</b>	<b>540.18</b>	<b>2671.29</b>
B). Special projects						
Agriculture	1184.23	308.23	308.23	335.23	389.23	<b>2525.15</b>
Allied sectors	808.5	808.5	808.5	808.5	810.5	<b>4044.5</b>
<b>Total</b>	<b>1992.73</b>	<b>1116.73</b>	<b>1116.73</b>	<b>1143.73</b>	<b>1199.73</b>	<b>6569.65</b>
<b>Grand Total</b>	<b>2520.91</b>	<b>1648.43</b>	<b>1650.85</b>	<b>1680.84</b>	<b>1739.91</b>	<b>9240.94</b>

## Conclusions

The increased targets of eleventh five year plan could be met only by the greater adoption of efficient higher technology levels in all cropping systems especially in blocks where input use is less. Crops like bajra, raya, wheat and guar will require focused attention. This would require large scale availability of machinery for land leveling (laser land leveller and zero tillage and precise placement of seeds and fertilizers at the appropriate depths. It is expected that the custom hire services will be encouraged. It is also expected that more land will be available on lease and therefore farmers would need more machinery for saving labour and increasing the efficiency of inputs. Yield level of top 10 per cent farmers may be assumed as an attainable yield in any coming season. The exercise of monitoring yield levels in each districts must be done for planning for the next season. This exercise may be made mandatory for each KVK and should form the part of planning process for any current year. Time has now come to again review the recommendation of fertilizer and to meet the target of attainable yield of top 10 per cent farmers, the recommendations of fertilizers may have to increase from current level. The brackish water is a serious problem in some blocks. The management of salinity and sodicity, especially in bajra-wheat, cotton-wheat and guar-wheat is important. Micro irrigation will be an important area for saving water. Management of problem soils, especially water-logged soils would require introduction of zero-tillage to advance the sowing of wheat. This technology can also be introduced in other cropping systems as the demonstrations in Beri and other adjoining areas have successfully demonstrated the virtues of this technology.

Jhajjar farmers are well known for rearing of Murrah buffalo. 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 Haryana where its young population does not wish to adopt farming as a profession. The way urbanization is happening in Haryana also calls creation of culture that helps farmers to adopt subsidiary occupations. We are convinced that the different sources of income including crops, dairying, mushroom cultivation and honeybee production etc can help farmers to get daily income. Balancing crop cultures and subsidiary occupations is the focal aspect of diversification in Jhajjar district.

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, bee-keeping, mushroom cultivation etc.

Water will remain the key variable for agriculture development in this district. The challenges for sustainability development will revolve around technologies that save water. The goal is to increase the productivity at 4% per year, reduce water consumption by 10% in each cropping system and energy consumption also be 10%. The micro-irrigation in different cropping systems, especially horticulture based cropping system have to be targeted at every farmer level. In future, urbanization around Jhajjar and development of retail stores will require knowledge of marketing, grading, processing and storage. The infrastructure to that effect will also need attention. Similarly the procession industry for milk and milk products should be encouraged because large size dairies will have to be established to cater to the need of urbanization and retail marketing.