

## **CHAPTER - 5**

### **AGRICULTURE PRODUCTION**

#### **Research & Education**

5.1 Rajasthan Agricultural University, Bikaner was established on August 01, 1987 with the objective of imparting education, generating information through basics and applied research & to disseminate through extension services for sustainable development of agriculture in whole of the state. In November 1999, the university was bifurcated with the creation of a new University, Maharana Pratap University of Agriculture & Technology with the headquarter at Udaipur. At present RAU, Bikaner has a service area of 21 districts of arid & semi-arid regions. MPUAT, Udaipur has a service area of 11 districts of south & south-eastern parts of the state. The major mandates of the two Agricultural Universities are (i) Education (ii) Research and (iii) Extension, keeping in view the agricultural development aspects of the respective service areas.

5.2 For the purpose of developing improved varieties of crops and cost-effective improved technologies for sustainable development of agriculture in the seven agro-climatic zones spread over the service area, RAU, Bikaner has seven Agriculture Research Stations. For veterinary & animal science research the University has three Livestock Research Stations at Bikaner, Chandan & Nohar along with two Animal Disease Surveillance & Diagnostic Centres (APEX Centres) at Bikaner & Jaipur. The University has also a National Seed Project at Bikaner with the mandate of producing breeder seed used for certified seed production by GOR/GOI agencies for the benefit of farmers. NSP unit also produces truthful labeled seed for direct supply to the farmers.

5.3 MPUAT, Udaipur has three Agriculture Research Stations at Udaipur, Kota, Banswara; Agriculture Research sub-stations at Pratapgarh, Aklera; Dryland Farming Research Station, Bhilwara and Live Stock Research Station at Vallabhnagar. The University has also a NSP Unit catering the need for Breeder Seed Production and Production of TFL seed for benefiting the farmers in the operational area of 11 districts.

5.4 For extension activities RAU, Bikaner has the KVKs at Bikaner, Jaisalmer, Fatehpur, Jhunjhunu, Bharatpur, Dholpur, Nagaur, Dausa, Sriganganagar, Navgaon, Ajmer, Jalore, Hindon-Karoli & Swaimadhapur. MPUAT, Udaipur has 10 KVKs at Banswara, Baran, Bhilwara, Bundi, Chittorgarh, Dungarpur, Jhalawar, Rajsamand, Sirohi & Kota.

5.5 During X<sup>th</sup> Plan, the quality of education has improved substantially which is reflected by higher placement of students through campus interviews. To take advantage of opportunities arising out of globalization course curriculum has been re-oriented for entrepreneurship. The new college of Horticulture & Forestry established in Jhalawar in 2004 which will cater to the needs of trained and skilled manpower in Horticulture & Forestry sector in the state.

5.6 During the year 2007-08 the new College of Agriculture is established in Lalsot (Dausa).

5.7 The extension programmes of the University have been reset to disseminate technologies through programmes like village adoption, development of model technology units at KVK's, knowledge centres in villages etc. The University has embarked on ambitious programmes of promoting horticulture.

5.8 In the Eleventh Plan, an amount of Rs. 2275.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 305.00 lacs and amount proposed for 2008-09 is Rs. 454.16 lacs for RAU, Bikaner and provision of Rs. 4125.00 lacs has been proposed for XIth Plan. Likely expenditure during 2007-08 is Rs. 556.00 lacs and amount proposed for 2008-09 is Rs. 543.10 lacs for MPUAT, Udaipur.

### **Crop Husbandry**

#### Agriculture Department

5.9 Agriculture plays a vital role in the economic development of the State and continues to be the backbone of our economy. Agriculture contributes about 27 per cent to the State Domestic Product. The average size of land holding in the State is 3.96 ha. as compared to 1.41 ha. at the all India level.

#### **The Salient Features of Agriculture in Rajasthan**

- Agriculture in Rajasthan is primarily rainfed.
- The period of monsoon is short, around three months. Its onset is late and withdrawal early, in comparison to other States.
- 90 per cent of the rainfall is received during monsoon season. In addition to spatial variation in rainfall there is great variation in the yearly pattern.
- 65 per cent of the total cultivation is under kharif season and is mostly dependent on rainfall, which is aberrant and uncertain.
- 60 per cent of the irrigated area is under wells and tube wells. The under ground water table, is falling by one meter every year.

## **Constraints**

### **Natural Constraints**

- Rainfall is highly inadequate and aberrant in nature.
- 61 per cent area lies in arid and semi-arid tracts, where soils have poor fertility, low water holding capacity and high infiltration rate.
- One million hectare area is under problematic soils (saline and alkaline).
- Due to scarcity of rainfall there is limited availability of ground water.
- Crops suffer due to high temperatures and wind velocity.

### **Research Constraints**

- Lack of suitable drought resistant, short duration, high yielding varieties of cereals, pulses and guar in kharif season
- Limited expertise for research in agro-forestry, horticulture and fodder crops
- Limited knowledge and literature available for post harvest management activities
- Negligible research facility in bio-technology including tissue culture
- Little information on cropping system based agriculture for different agro climatic conditions
- No research in organic farming
- Package of practices for integrated pest management not available for many crops
- Negligible research on efficient use of water saving devices like sprinklers, drip irrigation, etc.
- Lack of effective strategy for management of problematic soils

### **Infrastructural Constraints**

- Large area covered per retail outlets (32397) for agri. inputs.
- Large area covered per bank 102.87 sq. Km.
- Inadequate supply of power
- Lack of post harvest marketing and processing infrastructure support like cold storage, grading, washing, cleaning, waxing, packaging and container services
- Low level of Farm mechanisation
- Poor infrastructure support for horticulture and vegetable crops .

5.10 In the Eleventh Plan, an amount of Rs. 49000.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 6325.00 lacs and

amount proposed for 2008-09 is Rs. 5116.10 lacs. The scheme wise details are as under:-

### **Seed Sector**

5.11 Seed is an important component in agriculture development. In the Eleventh Plan, an amount of Rs. 585.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 143.00 lacs and amount proposed for 2008-09 is Rs. 113.00 lacs. Sub-component wise details are given below:

- Retail Outlets - In the Eleventh Plan, an amount of Rs. 40.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 8.00 lacs and amount proposed for 2008-09 is Rs. 8.00 lacs for the retail outlets of certified seed in the remote rural areas for greater availability of improved seed to the farmers.
- Buffer Stock of Certified Seed by RSSC - Rajasthan State Seed Corporation is committed to provide good quality certified seeds to farming community. Timely availability of good quality seeds plays a vital role in increasing production and productivity. A buffer stock of quality seeds is required to be maintained to cater the special requirements of the farmers in situations of drought, flood, etc. when the required varieties of seeds are not otherwise available. In the Eleventh Plan, an amount of Rs. 100.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 15.00 lacs and amount proposed for 2008-09 is Rs. 10.00 lacs.
- Operating Cost for Seed Testing Laboratories - To ensure quality seed distribution, it is necessary to test the seed samples, therefore, operating cost for seed testing labs is required. In the Eleventh Plan, an amount of Rs. 385.00 lakhs has been proposed.
- Operating Cost for GOT, Hybridity Test Farms & DNA Finger Printing Laboratory - Under CSS scheme GOT, hybridity test farms & DNA finger printing labs are being established during 2006-07. These farms & labs would require operational cost for smooth running. In the Eleventh Plan, an amount of Rs. 60.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 20.00 lacs and amount proposed for 2008-09 is Rs. 20.00 lacs.
- Incentive to private sector for establishing seed processing plan – back ended capital subsidy of a maximum of Rs. 10.00 lakhs is given to private entrepreneurs for establishment of seed processing plants in the Eleventh Plan, an amount of Rs. 375.00 lakhs has been proposed. The amount proposed for 2008-09 is Rs. 25.00 lakhs.

### **Manures & Fertilizers**

5.12 In the Eleventh Plan, an amount of Rs. 315.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 127.45 lacs and

amount proposed for 2008-09 is Rs. 69.01 lacs. Sub component wise details are given below:

- Operating Cost for Fertilizer Quality Control Laboratory & Soil Testing Lab - In the Eleventh Plan, an amount of Rs. 200.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 20.45 lacs and amount proposed for 2008-09 is Rs. 25.00 lacs for operational cost for Fertilizer Quality Control Lab and 12 Soil Testing Labs.
- Block-Wise Soil Fertility Mapping for Remaining Blocks - Out of 237 blocks, soil fertility mapping has been completed for 205 blocks. Block-wise mapping will be completed for remaining 32 blocks. In the Eleventh Plan, an amount of Rs. 30.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 5.00 lacs and amount proposed for 2008-09 is Rs. 4.00 lacs.
- Popularizing use of Bio-Fertilisers - In the Eleventh Plan, an amount of Rs. 30.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 2.00 lacs and amount proposed for 2008-09 is Rs. 4.00 lacs for Durgapura Rhizobium Laboratory during 2007-08 for testing of the Bio-fertilizers manufactured by other agencies.

### **Plant Protection**

5.13 Eradication of Pests & Diseases in Endemic & Non -Endemic Areas- In the Eleventh Plan, an amount of Rs. 330.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 50.00 lacs and amount proposed for 2008-09 is Rs. 50.00 lacs for eradication of Pests/ Diseases in endemic/non-endemic areas by use of PP chemicals.

### **Commercial Crops**

5.14 Incentive Cotton Development Programme (ICDP), Integrated Scheme of Oilseed & Pulses Oilpalm & Maize (ISOPOM) and Agriculture Technology Management Agency (ATMA) are Centrally Sponsored Schemes. For state matching share following provision is made:-

Table No. 5.1

S. No.	Name of Scheme	(Rs. in lacs)		
		Eleventh Plan Outlay	Likely exp. 2007-08	Proposed outlay 2008-09
1	ICDP	1000.00	123.00	100.00
2	ISOPOM	9200.00	1200.00	1200.00
3	ATMA	250.00	72.00	150.00
	<b>Total</b>	<b>10450.00</b>	<b>1395.10</b>	<b>1450.00</b>

### **Extension & Training**

5.15 In the Eleventh Plan, an amount of Rs. 7615.05 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 1283.64 lacs and

amount proposed for 2008-09 is Rs. 1127.01 lacs. Sub component wise details are given below:-

- Training of Staff & Education - In the Eleventh Plan, an amount of Rs. 325.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 58.00 lacs and amount proposed for 2008-09 is Rs. 58.00 lacs for staff training for developing communication, skill, and dissemination of technology, adoption process and capacity building for effective extension and need based transfer of technology.
- Demonstration on Organic Farming and Vermiculture - Organic Farming is becoming increasingly popular and global demand for organic product is growing rapidly. It also helps in sustainable agriculture, keeps environment pollution free and takes into account the health concern of the consumers.

5.16 However, as Earthworm plays an important role in recycling of farm waste and provides vermi-compost which has more nutrients than farm yard manure, this will be promoted during XIth plan. Vermi compost technique can be propagated on farmers fields with training and technical know how on production technology. Looking to the popularity of the programme and with more and more NGOs getting involved in promoting vermi compost activity, there would be no shortage of availability of earthworms for vermi composting. It is therefore, proposed that during XIth plan, 3 Kg earthworms shall be provided @ Rs. 375/- F.O.R. destination to the cultivators. Besides this, effective training would also be imparted on sites of demonstrations for greater publicity and spread of technology among neighboring farmers for which a provision of Rs. 100/- per training is proposed. Four such trainings shall be held at the village level. In the Eleventh Plan, an amount of Rs. 1590.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 168.63 lacs and amount proposed for 2008-09 is Rs. 150.00 lacs.

5.17 Agriculture Information - In the Eleventh Plan, an amount of Rs. 1525.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 335.00 lacs and amount proposed for 2008-09 is Rs. 235.00 lacs towards advertisement, documentation and publicity of Agriculture Information & Agriculture Technology through Exhibitions (State / National Level Exhibitions / Expos), Use of Electronic and Print Media i.e. Doordarshan (Navankur), AIR (Kheti Ri Bantan) sponsored programmes, information dissemination through News Papers etc.

5.18 Agriculture Extension Services - In the Eleventh Plan, an amount of Rs. 4175.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 684.00 lacs and amount proposed for 2008-09 is Rs. 722.00 lacs has been provided for various on going following field extension activities:

- Adoption of Village – Presently, the training & research institutions are organising in house training for farmers, workshops etc. All ATCs / KVKs /RTC’s scientists will adopt a few villages located in the vicinity of these centers. On this theme, the resource persons will organize trainings in the adopted villages and seasonal demonstrations on specific technology that needs to be popularized as per need of the area. In the Eleventh Plan, an amount of Rs. 50.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 10.00 lacs.
- Need Based Extension - Kisan Salahakar Samitis have been constituted at Assistant Agriculture Officer level and are comprised of one farmer, one Para Extension Worker and Village Extension Worker are each Gram Panchayat Area. This Samiti discusses village plan of kisan mandal and forwards the same to Department of Agriculture for funds etc. In the Eleventh Plan, an amount of Rs. 325.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 55.00 lacs.
- Incentive to Girls in Rajasthan - Literacy among women is only 44.34% and in rural areas it is a dismal 37.74% .Farming is the main source of subsistence in rural areas of the state. Involvement of women in agriculture ranges up to 70% in different parts of the Sate. Girls would be encouraged by providing incentives to them for taking agriculture subject at Sr. Secondary and College level. In the Eleventh Plan, an amount of Rs. 600.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 65.00 lacs and amount proposed for 2008-09 is Rs. 120.00 lacs. Incentive to girls taking agriculture subject at Sr. Secondary will be given Rs 3000 graduation/post graduation level Rs 5000 and for doctorate level Rs. 10000.
- Rent for Kisan Sewa Kendra - Presently there are 4373 KSKs in the State, which are rendering services to farmers. Most of these KSKs do not have buildings of their own. However, some KSK buildings have been constructed in a phased manner. Still majority of KSKs are being run in private buildings hence, the proposal is to provide nominal rent @ Rs. 150/- per month per KSK till all the KSK buildings are constructed. In the Eleventh Plan, an amount of Rs. 160.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 32.00 lacs and amount proposed for 2008-09 is Rs. 32.00 lacs.
- Inter & Intra State Exposure Visit of Farmers - The gap between technology evolved and adopted is widening day by day. Moreover direct interaction between farmers & research scientists, is limited.. The village level extension workers function is to work as intermediary between the farmers and

research scientists. It is proposed to introduce and institutionalize system of providing direct interface between farmers and scientists on problems and constraints faced in agriculture and communicating relevant technological advances to the farming community. In the Eleventh Plan, an amount of Rs. 1500.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 150.00 lacs and amount proposed for 2008-09 is Rs. 165.00 lacs.

- Communication & Mobility of Field Staff - For effective implementation of agriculture development activities and to facilitate better mobility of field functionaries for effective monitoring, In the Eleventh Plan, an amount of Rs. 290.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 75.00 lacs and amount proposed for 2008-09 is Rs. 75.00 lacs.
- Women Empowerment - A project on technological empowerment of women in agriculture is proposed to be undertaken as joint programme of State Government and SAUs. Under the project, women farmers will be trained in agriculture technology to become Vikas Vahini for technology dissemination. In the Eleventh Plan, an amount of Rs. 200.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 32.00 lacs and amount proposed for 2008-09 is Rs. 32.00 lacs.
- Organization of Camps (Krishi Yojana Aapke Dwar) - For better delivery of extension services and for providing incentives under various schemes to farmers in quick way and to ensure transparency in delivery of services, the Department of Agriculture is implementing "Krishi Yojana Apke Dwar" from 2005-06. During the year 2007-08, one camp per Gram Panchayat level will be organized and some special orientation and review camps will also be organized at Division and State level. In the Eleventh Plan, an amount of Rs. 850.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 163.00 lacs and amount proposed for 2008-09 is Rs. 150.00 lacs.
- Agriculture Technological Intensive/Employment Oriented Training of Farmers/ Farmers Groups - In the Eleventh Plan, an amount of Rs. 150.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 30.00 lacs.
- Assistance to NGOs - It is proposed to assist NGOs to undertake agriculture development programmes from state plan funds In the Eleventh Plan, an amount of Rs. 50.00 lakhs has been proposed.



## Crop & Weather Insurance

5.19 National Agriculture Insurance Scheme (NAIS) has been implemented in the State since Kharif, 2003. This scheme is compulsory for loanee farmers and optional for non-loanee farmers. In the State 12 crops are covered in the Kharif season i.e. Jowar, Bajra, Maize, Moong, Moth, Urad, Cowpea, Groundnut, Til, Guar, Arhar and Soybean. In the Rabi season 10 crops are covered under NAIS i.e. Wheat, Barley, Gram, Mustard, Taramera, Masoor, Coriander, Cumin, Isabgol, Methi.

5.20 In Rabi 2007-08 Weather Based Crop Insurance Scheme (WBCIS) is also implemented in 10 districts i.e. Ajmer, Bikaner, Barmer, Churu, Jaipur, Jaisalmer, Jodhpur, Ganganagar, Kota and Udaipur for 8 crops i.e. Whet, Barley, Gram, Mustered, Coriander, Cumin, Isabgol, Methi. In NAIS, claims beyond premium are shared equally by GoI and GoR on 50:50 basis. In weather based crop insurance scheme, premium subsidy is shared equally by Government of India and Government of Rajasthan on 50:50 basis and all claims are borne by implementing agency. In the Eleventh Plan an amount of Rs. 14147.92 lakh has been proposed for matching share. Although the budget provision in the 2007-08 is 997.29 lakh, expenditure is likely to be about Rs. 10300 lakhs. The amount propose for 2008-09 is Rs. 1350.76 lakh as payment of premium subsidy.

## Agriculture Engineering

### Distribution of Agriculture Implement/PP Equipments

5.21 For providing support to farmers for popularization of improved & energy efficient farm machinery & PP equipments.

5.22 The break up of allocated amount for various schemes is as under:-

Table No. 5.2

(Rs. in lacs)				
S. No.	Name of Scheme	Eleventh Plan Outlay	Likely exp. 2007-08	Proposed outlay 2008-09
1	Distribution of Agriculture Implement	335.00	36.00	--
2	Distribution of PP equip.	460.00	50.00	50.00
3	Implement Testing facility by III <sup>rd</sup> Party organization	25.00	5.00	5.00
	<b>Total</b>	<b>820.00</b>	<b>91.00</b>	<b>55.00</b>

## Other Expenditure

5.23 In the Eleventh Plan, an amount of Rs. 5335.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 895.00 lacs and amount proposed for 2008-09 is Rs. 590.00 lacs. Sub component wise details are given below:-

- Subsidy on Pipe Line - Due to cap on subsidy to farmers, 25% subsidy on water saving devices is being provided to all farmers under the Work Plan. Earlier 50% subsidy was provided to all farmers. The programme has been affected adversely due to this cap on subsidy under Work Plan. In the Eleventh Plan, an amount of Rs. 2265.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 355.00 lacs and amount proposed for 2008-09 is Rs. 80.00 lacs.
- Land Improvement Reclamation of Saline and Alkali Soil - At present, 25% subsidy is being provided to all farmers for reclamation of saline and alkali soils under Work Plan. The programme has been affected adversely due to cap on subsidy (25%) under Work Plan which was 50% earlier. For Gypsum distribution, to meet the differential subsidy of 25%, in the Eleventh Plan, an amount of Rs. 1050.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 100.00 lacs and amount proposed for 2008-09 is Rs. 100.00 lacs.

5.24 Innovative Programme - In the Eleventh Plan, an amount of Rs. 2020.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 440.00 lacs and amount proposed for 2008-09 is Rs. 410.00 lacs to meet the requirement of research and extension for specific farming situation, to permit taking up of any new schemes or programmes which are not covered under any of the on going schemes. Out of Rs. 410.00 lacs, and 310.00 lac for minikit distribution and Rs. 100.00 lac for R & D support. The funds will also be utilized to implement the recommendations of Task Force constituted under Prof. M.S. Swaminathan.

### **Shifting from Flood Irrigation to Drip Irrigation System**

5.25 In the Eleventh Plan, an amount of Rs. 0.15 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 0.03 lacs.

### **Innovative Schemes (Gramsat)**

5.26 Satellite Communication based network being installed in the State for facilitating training and extension activities of various departments with connectivity up to Panchayat Samiti level. Science & Technology is nodal department, entrusted with responsibility for its operation and maintenance. For this purpose, in the Eleventh Plan, an amount of Rs. 0.05 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. - 0.01 lacs and amount proposed for 2008-09 is Rs. 0.01 lacs.

### Capital Expenditure

5.27 In the Eleventh Plan, an amount of Rs. 3120.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 480.00 lacs and amount proposed for 2008-09 is Rs. 264.00 lacs. Sub component wise details are given below:

- Civil Works through Department/RSAMB - In the Eleventh Plan, an amount of Rs. 2025.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 233.00 lacs and amount proposed for 2008-09 is Rs. 250.00 lacs.
- Seed Testing Lab - In the Eleventh Plan, an amount of Rs. 15.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 15.00 lacs and amount proposed for 2008-09 is Rs. 2.00 lacs for necessary building, instrument/equipments, fencing & accessories for Seed Testing Lab to create Grow Out Test (GOT) facility.
- Quality Control/Pesticide Lab - In the Eleventh Plan, an amount of Rs. 80.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 32.00 lacs and amount proposed for 2008-09 is Rs. 12.00 lacs for necessary building, instrument / equipments & accessories for Quality Control Lab.

### **Funds for PRIs**

5.28 In the Eleventh Plan, an amount of Rs. 0.15 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 0.03 lacs and amount proposed for 2008-09 is Rs. 0.03 lacs.

### **HORTICULTURE**

5.29 Rajasthan State has diverse agro-climatic conditions which favour growing of large number of horticultural crops like fruits, vegetables, spices, flowers and medicinal & aromatic plants throughout the year. The Department of Horticulture came into existence in 1989 with the objective of harnessing the potential of horticulture in a systematic and planned manner so as to increase area, production and productivity of different horticultural crops and thereby to improve nutritional as well as economic status of people of State. During initial years, horticulture development activities were started in limited areas which picked up well during 8<sup>th</sup> plan when development schemes under Central Sector, ADP and State Plan, were launched together with enhanced financial allocation. As a result, some more areas of the State were brought under horticulture and at present a total of 20 districts out of 32 have been covered under Intensive Horticulture Development Programme. In remaining 12 districts, horticulture development activities are being taken up with the help of extension functionaries of Agriculture Department.

5.30 Government of India launched two Centrally Sponsored Schemes viz. National Horticulture Mission (NHM) with 100% financial assistance and Micro Irrigation Scheme (MIS) with 80% financial assistance during 2005-06. From the year 2007-08 the programmes of NHM are being funded of the ratio of 85:15 and executed in 23 selected districts of the State viz. Jaipur, Ajmer, Alwar, Chittorgarh, Kota, Baran, Jhalawar, Jodhpur, Pali, Jalore, Barmer, Nagaur, Sriganganagar, Tonk, Banswara,

Sawai Madhopur, Karauli, Bhilwara, Bundi, Dungarpur, Jhunjhunu, Sirohi and Udaipur. MIS is being implemented in all the 32 districts. NHM and MIS are implemented through District Horticulture Development Society under the chairmanship of District Collector. Funds are directly made available to the district level society.

5.31 Horticultural produce especially vegetables, fruits & flowers being perishable in nature, requires immediate marketing. Appropriate steps should be taken in this direction to protect the interest of farmers.

### **Goals / Objectives of XI Five Year Plan**

5.32 To boost production and productivity of different horticultural crops in the state and overall development of this sector, following objectives and priorities have been identified:

- Production of quality planting material to fulfill the demand of state.
- Promotion of drip irrigation system and low water requiring crops.
- Promotion of high value vegetables, flowers and aromatic crops.
- Organic farming of fruits, vegetables and spices
- Promotion of rain water harvesting structures for irrigation.
- Production tie up and buy back arrangement through contract farming.
- Involvement of private sector in the field of seed production, post harvest management and marketing of horticulture produce.

### **Steps to be taken to encourage Public-Private Partnership**

5.33 Horticulture sector is such where different activities could be promoted through leveraging the resources of the Government. Some of the identified sectors are as under:

- Production of quality homogeneous planting material through tissue culture techniques in large scale.
- Large scale production of certified/ quality vegetables and flower seed/ seedlings.
- Organic production of spices and vegetables and its certification.
- Management of post harvest- collection, grading, sorting and marketing.
- Commercialization of protected cultivation under green house condition.

5.34 In the Eleventh Plan, an amount of Rs. 10500.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 1297.00 lacs and amount proposed for 2008-09 is Rs. 1755.00 lacs. The break up of allocated amount for various schemes is as under: -

Table No. 5.3

(Rs. in lacs)

S. No.	Name of Scheme	Eleventh Plan Outlay	Likely exp. 2007-08	Proposed outlay for 2008-09
1	State Plan Scheme	2650.00	372.00	280.00
2	National Horticulture Mission (NHM) 15% state share	3850.00	200.00	750.00
3	Micro Irrigation Scheme 20% state share	4000.00	725.00	725.00
	<b>Total</b>	<b>10500.00</b>	<b>1297.00</b>	<b>1755.00</b>

### State Plan Schemes

- Establishment of Fruit Orchards - In order to promote the diversification of agriculture for sustainability, new plantations of pomegranate, Kinnow, Bael, Lime, Guava, Mandarain, Custard Apple, Mango, Ber & Aonla etc. would be taken up in identified clusters in the non NHM districts. The assistance would be provided @ Rs. 7500 per ha. In the Eleventh Plan, an amount of Rs. 1200.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 165.00 lacs and amount proposed for 2008-09 is Rs. 65.00 lacs for coverage in 1000 hac.
- Vegetable Demonstration - In order to propagate production technology, demonstration of vegetables and high value crops through high yielding varieties would be laid out with 50% assistance or maximum of Rs.1000/ per demonstration. The size of demonstration plot may vary from 0.1 to 0.5 ha depending upon the cost of seed and inputs. In the Eleventh Plan, an amount of Rs. 250.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 55.00 lacs and amount proposed for 2008-09 is Rs. 60.00 lacs for vegetable demonstrations.
- Weather Insurance - To provide insurance cover to horticultural crops against aberrant weather conditions, it is proposed to support weather insurance scheme for horticultural crops. 33.33% assistance would be given to the farmers on premium amount of insurance policy. In the Eleventh Plan, an amount of Rs. 100.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 10.00 lacs and amount proposed for 2008-09 is Rs. 10.00 lacs. for premium subsidy.
- Post Harvest Management - Horticultural crops are perishable in nature as a result of which about 30 % losses occurs after harvesting due to poor post harvest practices. Therefore it is proposed to provide financial assistance @ 50% of the capital cost of project subject to maximum of Rs. 5.00 lacs per unit for setting up of pack houses & processing units and packing material etc for

reducing the post harvest losses and for fetching better market prices. In the Eleventh Plan, an amount of Rs. 150.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 15.00 lacs and amount proposed for 2008-09 is Rs. 15.00 lacs for subsidy on PHM.

- Differential Subsidy for Establishment of Green House - For growing off season vegetables seedlings and other horticultural crops under controlled atmospheric conditions of green house, 33% subsidy is provided to general farmers and 50% to small/ marginal farmers under National Horticulture Mission. This technology is not getting momentum due to high cost involvement. So that, differential subsidy @ 17% for general farmers and 25% for small/ marginal farmers would be provided for green house which are to be established under NHM. In the Eleventh Plan, an amount of Rs. 100.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 15.00 lacs and amount proposed for 2008-09 is Rs. 15.00 lacs for differential subsidy.
- Innovative Schemes - The department is implementing different horticultural development schemes in the State but some times, specific need based schemes are also required to planned and implemented in the field with 50% assistance to farmers. In the Eleventh Plan, an amount of Rs. 100.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 10.00 lacs and amount proposed for 2008-09 is Rs. 12.00 lacs for innovative schemes.
- Research & Development - To enhance the productivity level of different horticultural crops and better Post Harvest Management, the need based research work would be conducted on state agricultural universities and adaptive trial centers of department. Assistance would also be provided to develop protocols and for production of homogeneous disease free planting material of horticultural crops and for running / establishment of Tissue Culture Lab/ Phytosanitary Lab. In the Eleventh Plan, an amount of Rs. 75.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 15.00 lacs and amount proposed for 2008-09 is Rs. 15.00 lacs for research and development.
- Setting of Vermi Compost Units - Keeping in view the side effect of residue of chemicals and fertilizers on human health, it is required to promote the cultivation of organic produce through motivating farmers and providing assistance for production of organic vermi compost. For this purpose assistance may be given @ Rs. 2500/- for establishing vermi compost unit at farmer's field. In the Eleventh Plan, an amount of Rs. 100.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 15.00 lacs and amount

proposed for 2008-09 is Rs. 10.00 lacs for setting of 400 vermi compost units.

- Dry Land Horticulture on Farmer's Field - Collection of rainwater by diverting the flow of runoff from field for recycling in fruit production may be the best approach for development of horticulture in the rain fed area of the State. For the purpose, it is proposed to assist the farmers @ Rs. 30000/- or 50% of the cost of construction of water harvesting structure. In the Eleventh Plan, an amount of Rs. 150.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 24.00 lacs and amount proposed for 2008-09 is Rs. 30.00 lacs for construction of 200 water harvesting structures.
- Publicity and Media Support - For organization of farmers fair, exhibition, seminar, workshop, printing of literature, running & maintenance of computer, printer and photocopiers, and bearing cost of NIT, AMC, minor repair and purchase of raw materials. In the Eleventh Plan, an amount of Rs. 150.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 10.00 lacs and amount proposed for 2008-09 is Rs. 15.00 lacs.
- Revitalization and Development - For minor repair, maintenance, sanitary fitting, partitioning, floor mating etc. in the departmental buildings, an outlay of Rs. 50.00 lacs and has been proposed for XI Five Year Plan (2007-12) likely expenditure during 2007-08 of Rs. 18.75 lacs and amount proposed for 2008-09 is Rs. 10.00 lacs.
- Assistance on P.P. Measures - The prophylactic/ control plant protection measures for the horticulture crops such as fruits, vegetables, spices, medicinal and aromatic plants, flowers, betel vine etc. are quite important, but it involve high expenditure. As such 50% assistance on the cost of pesticide up to maximum of Rs. 500/- per ha, is proposed under this programme. For the XI Five Year Plan (2007-12) and Annual Plan (2008-09) an outlay of Rs150.00 lacs and Rs. 18.00 lacs has been proposed to provide assistance for plant protection measures in 30000 and 3600 ha respectively. Likely expenditure during 2007-08 is Rs. 18.00 lacs.

### **Matching Share for National Horticulture Mission**

5.35 National Horticulture Mission has been launched by GOI from the year 2005-06 with 100% assistance. From the year 2007-08, 15% matching share is required from the State Plan. In the Eleventh Plan, an amount of Rs. 3850.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 200.00 lacs and amount proposed for 2008-09 is Rs. 750.00 lacs for state matching share.

### **Matching Share for Micro Irrigation Scheme**

5.36 Government of India have launched micro irrigation scheme with the 50% financial assistance to the farmers. As per guidelines of micro irrigation scheme, State Government will share the 20% amount of subsidy. The MIS includes two components viz. sprinkler and drip system of irrigation. In the Eleventh Plan, an amount of Rs. 4000.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 725.00 lacs and amount proposed for 2008-09 is Rs. 725.00 lacs for state matching share of MIS.

### **RAJASTHAN STATE WAREHOUSING CORPORATION**

5.37 Rajasthan State Warehousing Corporation (RSWC) is a Government undertaking. The main objective of the Corporation is to construct godowns and warehouses in the State for scientific storage of agricultural produce, fertilizer, seeds and other notified commodities.

5.38 In the Eleventh Plan, an amount of Rs. 1635.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 629.66 lacs and amount proposed for 2008-09 is Rs. 295.00 lacs.

### **WATERSHED DEVELOPMENT & SOIL CONSERVATION**

5.39 Soil erosion is the most serious and widely prevalent threat to productive land in the State. Productive land is a source of human sustenance and security. It is a non-renewable resource which provides the essential social environment in terms of shelter, roads and other land based facilities. Soils in Rajasthan are also subject to heavy moisture loss by quick evaporation. Uncontrolled run off not only result in loss of water and good top soils, but also in loss of valuable soil nutrient. Adopting appropriate soil & water conservation measures can considerably increase fertility of soil in rainfed areas.

5.40 With the establishment of Watershed Development & Soil Conservation Department in 1991, Rajasthan has been making rapid strides in development of participative, replicable, sustainable, ecological & low cost resource management for Watershed Development & Soil conservation, Management of Common Property Resources by elected User Committees and introduction of Gopals for the live stock development. These have been Rajasthan's innovations in development of rainfed agriculture in the country. The approach adopted has interested several international agencies.

5.41 Empowerment of User Committee had been a major thrust area since 1995-96. In this approach instead of getting works executed through the Government machinery, a committee of the beneficiaries executes the developmental works. These committees are popularly known as Users Committees. The User Committee is elected in general meeting of the village community and is responsible for finding solutions of problems through interaction with Government officials. Presently



there are about 15000 Users Committee functioning in the State. The department now has also operationalised bank accounts of User Committee and all payments are cleared through bearer cheques to avoid any misunderstanding.

5.42 During the XIth Five Year Plan period, Rs. 397.05 lacs has been proposed for various schemes of Watershed Development & Soil Conservation including soil conservation through Forest Department. Likely expenditure during 2007-08 is Rs. 47.01 lacs and amount proposed for 2008-09 is Rs. 33.67 lacs. The department wise details are as under:-

### **Watershed Development & Soil Conservation Department**

5.43 In the Eleventh Plan, an amount of Rs. 87.05 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 7.01 lacs and amount proposed for 2008-09 is Rs. 9.51 lacs. The scheme wise details are as under:-

5.44 Implementation of Watershed Projects is being carried out by Panchayati Raj Institutions. Responsibility of Project Implementation Agency (PIA) has been entrusted to Panchayat Samities whereas execution of project works is being carried out by Gram Panchayats.

5.45 As per guidelines, PIAs discharge its duties through a team called "Watershed Development Team (WDT)" which has minimum four members of different disciplines viz. Engineering/Agriculture Scientist/Veterinarian/Social Scientist. These members have been assigned joint as well as individual responsibility to carry out day - to - day work by helping / guiding Gram Panchayats.

5.46 One of the members of WDT is a woman. Social Scientist (Woman) included in WDT plays an important role in organising community, generating awareness and feeling to own the programme. Thus, the role of social scientist is self evident.

5.47 A provision of Rs 7.50 lacs has been proposed for XIth Plan. Likely expenditure during 2007-08 is Rs. 1.50 lacs and no provision has been kept during Annual Plan 2008-09.

5.48 Watershed programme is a people's programme and hence awareness among community, their capacity building, exposures, experience sharing etc. play an important role in making it a participatory programme. Though awareness generation is one of the major thrust area of watershed programmes but so far no budget is available at Directorate for this key activity. There is an urgent and inevitable need for strengthening awareness and publicity of watershed development activities through print and electronic media to let people know the immense utility of such activities in rural areas.

5.49 In the Eleventh Plan, an amount of Rs. 25.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 1.00 lacs and amount proposed for 2008-09 is Rs. 1.40 lacs.

### **Community participation & public private participation**

5.50 Watershed projects under different programmes are being implemented in the State as per Government of India guidelines. The concerned line departments earlier implemented these programmes. In the changed scenario, the responsibility of implementation has been entrusted to PRI's, so that the community could be effectively involved in planning, implementation and post project management.

- To develop a Model Watershed Project in each of the nine agro-climatic zones in the State, a need is felt to involve reputed lead NGOs.

5.51 Participatory Rural Appraisal (PRA) is one of the most important exercises in watershed development projects before finalising action plans. Thus, involvement of community is of paramount importance. Services of reputed NGOs having proven creditability and those who have worked in this field, can be taken to ensure public private participation in an effective and result oriented manner.

5.52 In the Eleventh Plan, an amount of Rs. 34.95 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 2.40 lacs and no provision has been kept during annual Plan 2008-09.

### **Special New Watershed Development Projects**

5.53 In the Eleventh Plan, an amount of Rs. 0.05 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 0.01 lacs and amount proposed for 2008-09 is Rs. 0.01 lacs.

### **Soil Conservation through Forest Department**

5.54 In this sector, the main focus is on carrying out soil and water conservation works for erosion prone sites and also to stabilize the soil by providing necessary soil cover. In the Eleventh Plan, an amount of Rs.310 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 40.00 lacs and amount proposed for 2008-09 is Rs. 24.16 lacs. The break up of allocated amount for various schemes is as under: -

Table No. 5.4

(Rs. in lacs)

S. No.	Name of Scheme	Eleventh Plan Outlay	Likely exp. 2007-08	Proposed outlay for 2008-09
1	Soil Conservation in Hilly & Ravine Area	280.00	35.13	18.47
2	Corpus Fund	30.00	4.87	5.69
	<b>Total</b>	<b>310.00</b>	<b>40.00</b>	<b>24.16</b>

### **Soil Conservation in Hilly & Ravenous Areas**

5.55 Under this scheme, soil and Water Conservation Works are being executed on priority in such hilly and ravenous areas which are more susceptible to soil erosion. The works, which will be taken up, are construction of check dams, contour trenches, earthen bunds (in case of ravines) and planting and sowing of soil binding species. In the Eleventh Plan, an amount of Rs. 280.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 35.13 lacs and amount proposed for 2008-09 is Rs. 18.47 lacs.

### **Corpus Funds**

5.56 The Centrally Sponsored Schemes of soil conservation in the catchments of River Valleys of Chambal, Mahi, Dantiwara and Banas are being implemented with assistance from Government of India. For the maintenance of assets created under these schemes as per the guidelines, an amount of Rs. 30.00 lakhs has been proposed for Eleventh Plan. Likely expenditure during 2007-08 is Rs. 4.87 lacs and amount proposed for 2008-09 is Rs. 5.69 lacs.

### **WORK PLAN**

5.57 Government of India started a scheme of Macro Management of Agriculture as a part of work plan. A total of 27 CSSs supported by ministry of Agriculture, GoI were subsumed in the work plan. Sharing of funds between GoI and State Govt. is in the ratio of 90:10. The central share comes as 80% grant and 20% loan to the State Government.

5.58 In the Eleventh Plan, an amount of Rs. 7000.00 lakhs has been proposed. Likely expenditure during 2007-08 is Rs. 566.47 lacs and amount proposed for 2008-09 is Rs. 463.12 lacs for state matching share.

5.59 The department wise break up of allocated amount are as under: -

Table No. 5.5

(Rs. in lacs)

S. No.	Name of Department	Eleventh Plan Outlay	Likely exp. 2007-08	Proposed outlay 2008-09
1	Agriculture Deptt.	2350.00	403.53	400.00
2	WD & SC - NWDPR	3150.00	566.47	463.12
3	Forest Deptt.	1500.00	230.00	350.00
	<b>Total</b>	<b>7000.00</b>	<b>1200.00</b>	<b>1213.12</b>