

AGRICULTURE

1. Introduction :

The state occupies 10 percent of the total geographical area of the country, but the vast geographical area commands only 1 percent of the total water resources in the country. Agriculture is mainly rain fed but it is inadequate and aberrant. The dismal scenario of water availability in the state is compounded further by the following factors:

- Monsoon period is short with late onset and early withdrawal
- Average rainfall is 58 CMs while 61 percent of the area lies in arid and semi-arid tract. Soil in the area has poor fertility, low water holding capacity and high infiltration rate.
- A large tract of land is saline and alkaline soil. The south east and eastern part of Aravali range is productive for agriculture purposes having clay loam soil type.

Focus of cropping pattern in rain fed areas is to meet the food requirement of the people and fodder requirement of the animals. The crops are grown under high risk. In normal years, farmers face price fall due to glut in the market while drought years have yield risk due to total or partial failure of crops.

2. Land Use Pattern And Land Holdings :

Out of the total geographical area in the State, even 50 percent is not cultivable and within cultivable land, soil fertility varies considerably across districts. The wide differences in land productivity indicate the variation in soil health across districts in the State.

A relatively large average size of holdings of 3.07 hectare of land is again a manifestation of the less fertile land and soil structure in most of the arid and semi-arid zones in the state. Small and marginal farmers in the state constituted more than 58.40 percent share in total area. On the other hand, farmers with holding size of 10 hectares but held 33.33 percent of the total area. This highly skewed distribution of land itself is a major barrier to make effective intervention in the advancement of agriculture.

3. Soil Health In Rajasthan :

Rajasthan being geographically the largest state in the country has a varied topography where Soils differ in quality depending on the organic matter present in them, their physical structure, local climatic variation, the crop rotation cycle that is followed, availability of moisture etc. The nutrient carrying capacity of soils varies not only within the district but also village to village and even farm to farm. Soils of the state have low microbial activities and poor soil organic carbon due to which more than 75% soils of the state are not in good health. Deficiencies of Nitrogen, Phosphorous, Sulphur, Zinc and Iron are quite common.

Different soil types are found in the different districts of Rajasthan. Based on the type of the soil found in different districts in Rajasthan, broadly the soils can be classified under 14 categories. The least fertile desert soil is found in Sri Ganganagar, Churu, Jhunjhunu, Bikaner, Jaisalmer, Nagaur, Barmer, part of Jodhpur and Sikar. The productivity in those districts for all varieties of crops is much on a lower side than other districts in the State.

Soil testing is an important tool to determine adequacy of a plant nutrient in a field and quantity of fertilizer required to be applied to obtain profitable crop yields.

To address the problem of occurrence of multi nutrient deficiencies, Department of Agriculture, Rajasthan has a wide network of Soil Testing Laboratories of 46 static (32 departmental and 14 on PPP mode) and 12 mobile soil testing labs on PPP mode, with a combined capacity of analysing 5.22 lac soil samples. Out of these, 32 labs also have facility to test micronutrients. 55 new soil laboratories are being developed and proposed to be operationalized by the end of this financial year. After making these laboratories operational the capacity will be increased to 10 lakhs samples per year.

With the launch of a new Soil health card scheme by Hon'ble Prime Minister, Government of India on 19 February, 2015 at Suratgarh, District Sriganganagar, the State of Rajasthan has geared itself to provide Soil Health Cards to every farmer of the state in a period of three years. Total 23.69 lakhs soil samples are proposed to be analysed and around 70 lakhs soil health cards will be issued to the farmers of the state during these three years.

Plan of Action includes covering of One third area of the state every year. Average soil sample load each year will be around 7.70 lakhs for which 23 lakhs soil health cards will be distributed. After collection of soil samples, the analysis will be done by existing soil laboratories. Establishment of 55 new soil labs will also add to the capacity of analysis. Soil health Cards would be distributed through extension activities and land holding wise data will be recorded on computer. Trainings and demonstrations will be conducted to show the impact of balance and integrated use of nutrients and judicious way of using different fertilizers and manures.

Soil Testing :- Presently in state, there are 58 Soil Testing Laboratories in which 12 are mobile, 14 are static on PPP Modes. And rest at district level. The annual combined capacity to test soil samples is about 5.22 lakhs. Total Health Card distributed from 2002-03 to 2014-15 was about 33.99 lacs. The strategy for providing soil health cards to all 68.88 lacs land holding of the state in every 3 years. 55 new soil testing labs are being developed. In which 36 labs from Agriculture Cluster Level and 19 are to be KUMs. The estimated project cost to establish Soil Testing Labs will be about 2145 lacs. Construction of these labs buildings are under progress. After establishment of these new labs the annual soil testing capacity will be increased to 10.22 lac samples.

Soil Health Card Scheme—Swasth Dhara, Khet Haraa

The motive of this scheme is to provide soil health cards holdings at interval of 03 years. Collection of soil samples-one sample at 2.5 ha and 10 ha unit Irrigated and Un-irrigated area respectively. The major & micro nutrients analysis of soils will be done.

Scope- Soil Analysis in every year will be done about One third area of state. Average sample load each year will be around 7.69 lac and 23.24 lac soil health cards. Total soil samples to be proposed 23.24 lac and around 70 lac soil health cards will be prepared.

4. Water Resource Management :

4.1 : Rainfall Pattern in Rajasthan : Rajasthan is known for its aberrant and uncertain nature of rainfall. As more than 60 percent of the gross sown area in the state falls under arid or semi-arid zones in the state, agriculture in the state continues to be largely rain fed.

1. The department is promoting use of short duration varieties of crops suitable for rain fed areas. Diversification of crops from more to less water requiring crops, is also encouraged.

Water efficient cropping systems like P.millet-Gram, P.millet-mustard, Fallow-Taramira, soybean- coriander etc are popular among farmers.

2. Cultivation of wheat and Barley requiring high water are put in lesser area.
3. Steps have been taken for increasing SRR of rainfed crops especially oilseeds and pulses mainly grown in western Rajasthan.
4. Activities like declaration of MSP of pulses like guar, moth, and spices like coriander, cumin should be considered.
5. Farmers are motivated for deep summer ploughing for control of insect, pest and diseases.
6. Use of organic manures before rains to conserve water in soil is popular.
7. Seed treatment, timely sowing, balanced use of fertilizers also being promoted.
8. Irrigation at critical stages also advised and practiced by farmers.
9. Water saving structures encouraged like construction of farm pond, doggies, jal hoj etc and also subsidized to farmers.
10. Use of sprinkler, drip and solar pumps for efficient water management also done by farmers.
11. Contingency crop plans prepared and popularized among farmers to reduce risks.

4.2: Ground Water : Rajasthan is a deficit state with respect to groundwater as well as available irrigation water. It contains about 11 percent of total land resource of the country but the availability of the total water resource of the country is hardly 1 percent. Maximum utilization/ exploitation of these water resources has resulted in the irrigation of 32 percent of the area in the state.

For optimum utilization of available water, water storage structures like construction of farm ponds, water storage tanks, construction of doggies and pipeline are being promoted under various schemes : (a) diggi-cum-sprinkler are very beneficial in canal commands areas, where canal closure and breakage and under supply of water is a common phenomenon, (b) water storage tanks become vital in well and tube well irrigated area where water is drawn from 300-600 feet depth and electricity is in short supply or available during nights, in such cases water storage tanks acts as reservoir for storage of water from wells/tubes wells which ensures as-and-when-irrigation in required quantities, (c) rain water harvesting structures particularly the farm ponds are useful in

runoff water collection during rainy season which is used for life saving irrigation during Kharif when there is long dry spell or normal irrigation in Rabi season.

5. Major Crops :

The diversity of land, soil and climate in Rajasthan makes the state a distinctly different one in India. In two major seasons, viz., Kharif and Rabi, cultivation in the state under normal conditions of rainfall grow mostly cereals, oil seeds and pulses. However, prospects of a normal crop year is often marred by intermittent drought as the probability of every other year turning out to be a drought year has been estimated as high as 0.5. Moreover, Rajasthan accounts for 70 percent of the total arid and semi arid zone in India and these arid zones are concentrated mostly in the western part of the state. A notable difference between Kharif and Rabi crops is that Bajra is the major crop in Kharif while Wheat takes on other crops in area during Rabi season.

6. Input Management :

Modern agriculture has almost seized to be an economic activity performed in closed economy system characterized with the features of a natural economy. In modern agriculture, activities in the farm are organized akin to the industry and therefore efficient input management is inevitable. Input includes fertilizers, pesticides and other means of production including land and labour. The Application of fertilizers is closely inter-linked to water availability and cropping pattern. Fertilizer consumption (NPK) in Rajasthan is one of the lowest in India.

Department of Agriculture, Rajasthan has planned the demand of fertilizer on the basis of consumption during Rabi & Kharif seasons in previous years. Demand of fertilizers is sent to GOI for the approval. GOI gives allotment to State month wise, company wise & fertilizer wise. Estimated demand of fertilizers for Kharif 2015 is 16.23 Lac MT (8.00 LMT Urea, 4.00 LMT DAP & 4.23 LMT other fertilizer) & Rabi 2015-16 is 22.56 Lac MT (14.25 LMT Urea, 4.00 LMT DAP & 4.31 LMT other fertilizer). During the peak seasons sometimes State has faced shortage of fertilizers.

To mitigate the problem of fertilizer shortage in peak season department has initiated necessary efforts regarding Advance Stocking of Fertilizers before onset of sowing season through

RAJFED. For the year 2015-16 3.00 Lac MT Urea & 1.00 Lac MT DAP is being advance stocked with RAJFED, which is nearly 10 percent of total demand of these fertilizers.

State has been also promoting the consumption of Single Super Phosphate instead of DAP by using it through demonstration organized by Department and also providing trainings to farmers to popularize it. State has also been promoting the use of Neem Coated Urea among the farmers to increase the nitrogen use efficiency.

7. Crop Insurance :

The State has been implementing Weather Based Crop Insurance Scheme (WBCIS) in 20 districts and Modified National Agriculture Insurance Scheme (MNAIS) in 13 districts. Crop Insurance Scheme is compulsory for all loanee Farmers whereas it is optional for non-loanee Farmers. This Scheme is being implemented in state through Insurance Companies empanelled by Government of India. Under this Scheme, all important Kharif and Rabi Crops are notified.

8. Organic Farming :

Organic Farming has been one of the priority areas of the State Government in Agriculture Sector.

Organic farming promotional activities are taken up under state plan. It has relevance as it reduces cost of production. Organic farming demonstrations are laid out to demonstrate use of organic inputs on farmer's field. Assistance of 50% of cost or Rs 2000 per demonstration is provided along with training camps at successful sites. During 2015-16 total 1720 demonstrations and 344 FFS in 16 districts with Rs 50 lac is proposed. In order to popularize organic farming in farmers, an incentive of Rs 8000 per ha per farmer is provided. It is a cluster based programme in which assistance is given for 0.5-2 ha area. During 2015-16 the programme will be implemented in 10 districts with 1630 ha area and provision of Rs 185.00 lac. Three farmers doing excellent work on organic farming will be awarded at state level with cash prize of Rs 1 lac each.

Organic farming is also promoted under Paramparagat Krishi Vikas Yojna (PKVY) during 2015-16 through adoption of organic village by cluster approach and PGS certification. PKVY is an elaborated component of NMSA (SHM). The scheme envisages promotion of commercial organic

production through certified organic farming and natural resource mobilization for traditional input production. A provision of Rs 52.28 Cr has been kept under PKVY during 2015-16.

9. Research Activities :

Adaptive Trial Centres (ATC) were established with the objective to have advance verification / modification of existing incoming research recommendations given by SAUs for particular region for maximum economic returns. After 3 years of successive trials at ATCs, if the results are found significant and parallel with the SAUs, it is recommended in Package of Practices (POP) for adoption at farmer's level. 10 ATC's are engaged for taking experiments in Kharif and Rabi season on various problems of different agro climatic zones, training, IPM, testing of private company seed material, etc. for which a provision of Rs 100 lac has been kept under state plan for 2015-16. A provision of Rs 125 lac has also been kept for enhanced seed production, infrastructure development and high-tech agriculture on ATCs during 2015-16 under state plan.

There are Five Agriculture Universities working in the State viz.;

- (i) Swami Keshawanand Rajasthan Agriculture University, Bikaner
- (ii) Maharana Pratap University of Agriculture and Technology, Udaipur
- (iii) SKN Agriculture University, Jobner (District : Jaipur)
- (iv) Agriculture University, Ummedganj, Kota
- (v) Agriculture University, Mandore, Jodhpur

State Agriculture Universities have an important mandate of research for development of new varieties of crops, as well as, technologies for the benefit of Farmers.

Major Centrally sponsored Schemes (CSS) of Agriculture and Horticulture :

A. Agriculture

1. National Food Security Mission (NFSM) :

- 1.1 : NFSM (Wheat)
- 1.2 : NFSM (Pulses)
- 1.3 : NFSM (Commercial Crop)
- 1.4 : NFSM (Coarse Cereal)

2. National Mission on Oilseed and Oil Palm (NMOOP) :

2.1 : NMOOP (MM-I on Oilseeds)

2.2 : NMOOP (MM-III on Tree-Borne Oilseeds)

3. National Mission on Agriculture Extension and Technology (NMAET) :

3.1 : NMAET (Agricultural Extension)

3.2 : NMAET (e-Governance)

3.3 : NMAET (Agricultural Engineering)

3.4 : NMAET (Seed and Planting Material)

4. National Mission on Sustainable Agriculture (NMSA) :

4.1 : NMSA (Rainfed area development)

4.2.1 : NMSA (Soil Health Management)-for 55 new Labs

4.2.2 : NMSA (Soil Health Management)-Organic farming including
PKVY

4.3 : NMSA (Soil Health Card)

5. Rasthriya Krishi Vikas Yojana (RKVY)

6. Pradhanmantri Krishi Sinchai Yojana (PKSY)-

Financial Requirement of Agriculture Department

(Rs. in lac)

Scheme	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
State Plan	67461	74207	85339	93872	103260	113586
RKVY	60000	66000	75900	83490	91839	101023
NFSM	31779	34957	40201	44221	48643	53507
NMOOP	8165	8982	10329	11362	12498	13748
NMAET	10498	11547	13280	14608	16068	17675
NMSA	12892	14182	16309	17940	19734	21707
Total	123334	135668	156018	171620	188782	207660

Note:- This does not include funds for Soil Health Card Scheme, PKVY & PMKSY.
Provisions will change as per sanctions of GOI and GOR.

Seed Development

Rajasthan State Seeds Corporation is a major contributor (i.e. 25%) in production, processing and marketing of certified and foundation seed of different state specific crops in the State. In order to meet the enhanced availability of quality seeds, Rajasthan State Seeds Corporation has following infrastructure, achievements and plan for next five years.

Processing Plants:- At present RSSC has 22 processing plants at different locations in the state. The processing capacity of these plants is 18.59 lacs qtls per year.

Storage Capacity:- Present storage capacity of the RSSC godown are 9.21 lacs qtls.

Man Power:- At present 197 officers/employees are working with RSSC. Recruitment of 20 seed officers is under process.

Farmers associated with seed production programme:- At present approximately five thousand farmers are engaged in Kharif crops production programme and similarly approximately six thousand farmers are associated with seed production of Rabi crops.

Marketing Network:- RSSC is associated with various agencies like 120 KVSS, 5000 GSS, 1200 authorized dealers and 50 non exclusive committed dealers for the sale of certified seeds to the farmers.

Present position of seed production in Kharif, Rabi and Zaid season:-

During the year 2013-14 certified and foundation seed production was 5,90,997.67 Qtls.

During the year 2014-15 estimated seed production programme of certified and foundation seeds is 4,84,777 Qtls (tentative).

Activities/works carried out by RSSC to fulfill the need of the issues along with five year achievements:-

- a. Farmer training programme:-** During year 2010-11, 34866 farmers; in the year 2011-12, 19134 farmers; in the year 2012-13, 16139 farmers; in the year 2013-14, 101249 farmers and in the year 2014-15, 61088 farmers have been trained for seed production in the State.

b. Improvement in procurement policy:- Seed production incentive for different state specific crops like Bajra, Moth, Til, Cowpea has been increased considerably to promote seed production of aforesaid crops.

c. Infrastructure Development:- During last five year the storage capacity has increased from 643000 Qtls to 921000 Qtls and the processing capacity increased from 1213000 Qtls to 1859000 Qtls through increasing number of seed processing plants from 20 to 22.

d. Seed production achievement during last five years:-

S.N.	Year	Seed Production (Qtls)
1	2010-11	692331.33
2	2011-12	671061.00
3	2012-13	780178.00
4	2013-14	590997.60
5	2014-15 (Tentative)	484777.00
	G. Total	3219344.93

e. Certified Seed Distribution during last five years:-

S.N.	Year	Seed Distribution (Qtls)
1	2010-11	502460
2	2011-12	632866
3	2012-13	719003
4	2013-14	744908
5	2014-15 (Tentative)	542799
	G. Total	3142036

Financial requirement of different activity for next five year:-

a. Financial assistance required for seed production & marketing.

(Rs. in crores)

Crop	2015-16	2016-17	2017-18	2018-19	2019-20
Pulses	36	37	38	39	40
Oil Seeds	33	34	35	36	37
Coarse cereals	9	9.5	10	10.5	11
Wheat	50	52	54	56	58
Barley	8	8.5	9	9.5	10
Fodder Crops	0.30	0.35	0.40	0.45	0.50
Vegetables	0.04	0.05	0.06	0.07	0.10
Total	136.34	141.4	146.46	151.52	156 .6

Above financial assistance will be provided either by Central Government schemes or State Government schemes.

b. Seed Production targets for next five year:-

(Qty in qtls)

Crop	2015-16	2016-17	2017-18	2018-19	2019-20
Pulses	144000	148000	152000	156000	160000
Oil Seeds	150000	154545	159091	163636	168182
Coarse cereals	15000	15833	16667	17500	18333
Wheat	500000	520000	540000	560000	580000
Barley	53333	56667	60000	63333	66667
Fodder Crops	1000	1167	1333	1500	1667
Vegetables	160	200	240	280	400
Total	863493	896412	929331	962250	995248

c. Infrastructure Development:-

- (i) Seed Extension Centre:-** RSSC will open 9 seed extension centers, for which approximately RS. 14 Crore's will be required. This financial assistance will be provided either by Central Government schemes or State Government schemes.
- (ii) Q.C. Lab:-** To maintain the seed quality RSSC will establish quality control Lab in Udaipur. For this approximately Rs. 50 Lacs will be required which will be provided either by Central Government schemes or State Government schemes.
- (iii) Processing and Storage:-** In coming five years we propose to increase storage capacity by 5.60 lacs qtls and processing capacity by 10.10 lacs qtls per annum in phased manner. For these activities a request for financial assistance for Rs. 57.34 Crores is submitted to Government of India for consideration under CSS (NMAET).

HORTICULTURE

Keeping in view the nutrition requirement of fruits, vegetables and spices, medicinal requirement of medicinal plants and religious requirement of flowers, the horticulture sector has come up in a big way to fulfill the basic requirements of human being. Beside this, the horticulture sector has given a satisfaction level to the farmers in the way of earning of more money per unit area and more employment generation.

The Horticulture Department is playing the key role in the development of horticulture sector in the State. Department is engaged in following activities to promote the horticulture in the State-

1. Increasing the area, production and productivity of various horticultural crops like fruits, vegetables, spices, medicinal crops and flowers.
2. Promotion of water saving devices like drip irrigation and sprinkler irrigation system to save the water and earn more money from per drop of water.
3. Promotion of protected cultivation like green house cultivation, shade net house cultivation, low tunnel cultivation etc to increase the productivity level of horticultural crops per unit area and also to produce the exportable quality produce.
4. Promotion of post harvest infrastructure to reduce the post harvest losses at the farm level, during transportation and to avoid glut in the market so that farmers could earn more income from their produce.
5. Production of good quality and disease free planting material of fruits plants so that farmers can grow them with higher level of satisfaction.
6. Establishing the crops wise Centre of Excellence of different horticultural crops so that farmers could be aware of best technology by the means of seeing is believing.
7. Educating farmers through trainings regarding latest technology available in the field of horticulture so that farmers could adopt them and get the maximum production of the crop.

8. Promotion of water saving infrastructure like community farm ponds and individual water harvesting structures so that farmers could collect the run off rain water to further use in the irrigation.
9. Providing quality seeds of vegetables, spices, flowers and medicinal plants to the farmers so that they could be able to grow and produce more yields per unit area.
10. Promotion of alternative source of energy i.e. Solar pumps so that dependency on electricity could be reduced and farmer could be able to irrigate the crops through solar pumps in absence of electricity.

Present Status:

The area and production of different horticultural crops are as under:

S.No.	Crops	Area in ha.	Production in MT
1	Fruits	36418	559497
2	Vegetables	133264	878911
3	Spices	803266	705304
4	Medicinal & Aromatic Crops	237823	125909
5	Flowers	2889	3081
	Total	1213660	2272702

Schemes / programmes being implemented by the Department:

The schemes being implemented by the Horticulture Department along with the out lay and expenditure for the year 2014-15 and plan for the year 2015-16 is as under:

S.No.	Name of Scheme	Year 2014-15		Year 2015-16
		Out lay	Exp.	Out lay
1	National Horticulture Mission	5139.24	4503.98	11000.00
2	Pradhanmantri Krishi Sinchai Yojana (Micro Irrigation)	13861.00	7312.00	20950.00
3	Rashtriya Krishi Vikas Yojana	20547.68	20145.56	6166.47
4	National Bamboo Mission	150.00	23.94	364.00
5	National Mission on Medicinal Plants	35.17	11.06	50.00
6	State Plan			

	a. Solar Pump	10020.19	0.00	10015.15
	b. Other activities	7767.61	5855.45	9218.37
	Total	57520.89	37851.99	57763.99

Identification of areas where other States have done good works:

The state of Maharashtra, Gujarat, Punjab and Haryana have established the Centre of Excellences on different fruits, vegetables etc. On the same pattern, Department of Horticulture is also establishing 6 Centre of Excellences in the State. However, two more Centre of Excellence on Flowers and Vegetables are still required to be established in the State.

Other issues required to be taken up:

Following issues are urgently needed to be addressed:

1. Department of Horticulture is promoting the water saving devices like drip, sprinkler, mini sprinklers etc under the Pradhanmantri Krishi Sinchai Yojana (Micro Irrigation) wherein a subsidy level to the tune of 35 % for general farmers and 45 % for the Small and Marginal Farmers is admissible. Keeping in view the very poor availability of water in the state and to efficiently use the available water, it is required to increase the subsidy level to the tune of 70 % for all farmers else the scheme will be adversely affected.
2. Similarly for increasing the productivity level of horticultural crops, green house and shade net house are being promoted under National Horticulture Mission wherein 50% subsidy is admissible. Keeping in view the higher cost involvement in construction of green house and shade net house, an additional subsidy to the tune of 25% is required to be given to the farmers from State Plan.
3. For storing the rain water runoff in the field, a subsidy of Rs. 20.00 lacs is admissible for construction of 100X100X3 mtrs. water storage tank under National Horticulture Mission. If a farmer construct the above water tank with cement concrete and plastic lining, then the cost comes around the double of the provision, therefore it is proposed

that an additional subsidy of 50% the provision should be provided for Water harvesting Structures.

4. Three Centers of Excellences on citrus, datepalm and pomegranate have been established through the funds of National Horticulture Mission. The funds under NHM are exploited during current financial year. Therefore, for further maintenance of COEs and recurring expenditure, a financial provision of Rs. 50.00 lacs is required to be kept under State Plan from the year 2016-17.
5. Keeping in view the importance of electricity at farm, the alternative source of electricity i.e. solar pump is required to be promoted. For this, the existing level of subsidy i.e. 70% is required to be maintained so that more farmers could be able to use solar power for irrigating the crops.

Major Centrally sponsored Schemes (CSS) of Horticulture :

1. **Pradhanmantri Krishi Sinchai Yojana (PKSY)-** On Farm Water Management
2. **National Mission for Integrated Development of Horticulture (NMIDH)**
 - 2.1 National Horticulture Mission
 - 2.2 : National Bamboo Mission
3. **National Mission on Medicinal Plants**

Innovative and Successful Programmes

1. Centre of Excellence for Horticultural Crops:

State has established six different “Centre of Excellence” for demonstration of modern intensive crop cultivation technology, post harvest management practices and human resource development facilities for farmers and extension workers. The objective of these centers is to enhance the mutual exchange of knowledge, technology and guide the farmers with appropriate technology. The details are as under:

- Centre of Excellence for citrus (Mandarin), Kota
- Centre of Excellence for Pomegranate Bassi, Jaipur
- Center of Excellence for Date Palm (HRD & PHM), Sagra-Bhojka, Jaisalmer
- Centre of Excellence for Guava, Devdawas, Tonk
- Centre of Excellence for Citrus, Spices & Medicinal plants, Jhalawar
- Centre of Excellence for Aonla, Mango, Ber, Olive, Guava Khemri, Dholpur

2. Olive Cultivation:

State is developing Olive hubs in different regions. Rajasthan Olive Cultivation Limited (ROCL) was constituted in April 2007 in collaboration with the Rajasthan State Agriculture Marketing Board (RSAMB), Finolex Plasson Industries Limited (EPIL) & Indolive Limited of Israel to study the technical feasibility and economic viability of olive cultivation in the State.

Seven olive farms have been developed on State owned land in various parts of the State on a total area of 182 hectares. For this 1.12 lakh plants of seven different olive varieties namely Barnea, Arbequina, Cortina, Picholine, Picual, Coraniki & Frontoy were imported from Israel. Olive plantation was started from March 2008 and completed in 2010 at following seven different locations of the state.

- Bassi (Jaipur) – 2.00 ha
- Bakalia (Nagaur) – 30.00 ha

- Santhu (Jalore) – 30.00 ha
 - Barore (Bikaner) – 30.00 ha
 - Lunkaransar (Bikaner) – 30.00 ha
 - Tinkirudi (Alwar) – 30.00 ha
 - Basbasina (Jhunjhunu) – 30.00 ha
- An Olive oil extraction unit was also commissioned in 2013. Fruiting of plants took place in last two seasons and oil extraction has also begun in the State. Now, horizontal expansion on farmer's field has been started.

3. International Horticulture Innovation and training centre (IHITC):

The State Government has set up International Horticulture Innovation and Training Centre (IHITC) with the technical support of PTC+ International; Netherland to provide practical training on modern hi-tech horticulture aspects in order to promote commercial horticulture. For this MOU between Rajasthan Horticulture and Nursery society (RAJHANS) and PTC+ International was signed on 27.07.2008 and IHITC was registered under Societies registration Act 1958 on 12.09.2008

4. Award to the farmers:

In order to promote hi-tech agriculture, innovation and modern practices in the Sector, the State Government had started a program for awarding farmers in the year 2009. Under this program, two farmers at the State level, two farmers from each of the district and two farmers from each of the block are selected for award. An award of Rs. 50,000 for every farmer selected at the state level, Rs. 25,000 for every farmer selected at the district level and Rs. 10,000 for every farmer selected at the block level is given. For the year 2014-15 total 496 farmers were awarded in the State.

5. Farmer to Farmer Extension System:

To accelerate the rate of adoption of new / innovative practices of Agriculture, Horticulture and Dairy technology by farmers, "farmer to farmer extension approach" is being used in the state. In this approach "Specialist Farmers" are selected who in turn become leader farmer for other farmers. In every district 10 progressive farmers

have been selected under this program. The technology adopted by Specialist farmer is further demonstrated amongst other farmers. Specialist farmers are invited in different types of trainings conducted by various Departments, in which they share experience and knowledge with other farmers and extension workers. Various departments also arrange visit of farmers to the fields of “specialist farmers” for field exposure.

6. Date Palm Cultivation:

This scheme started at farmer's field in the year 2008-09. 750 Ha. area covered under farmer field and 130 Ha. at Govt. farm. Plants have been imported from Saudi Arabia and secondary hardening has been done in the state. Fruiting has started on Govt. farms. A tissue culture lab has also been setup for preparing good quality planting material.

7. Solar Pump Programme:

The State is a leader in installing Solar Pumps for drawing underground water for irrigation of agricultural fields. In the state Pilot project on Solar Pump started in the year 2010-11. So far, 15075 pumps have been installed in the State.

ALLIED SECTORS

Introduction:

It has already been reported that the crop production in Rajasthan has been in the midst of a cluster of constraints including poor soil health, intermittent drought, rain-fed agriculture, and inadequate irrigation infrastructure and plummeting ground water level at an alarming magnitude. Compared to other states in India, allied sectors, viz., animals husbandry, forestry, horticulture and fisheries assume special significance for Rajasthan as a main source of income in drought years and supplementary income provider in normal years. The drought years in the state, which are more certain than normal years is overcome by small and marginal farmers with their cows, buffalos, goats and sheep. For the agricultural sector in Rajasthan to sustain added thrust on animal husbandry and other allied sectors have become all the more important in the present context.

ANIMAL HUSBANDRY

In Rajasthan Animal Husbandry is not merely a subsidiary to Agriculture but it is a major economic activity specially in arid and semi-arid areas, thus providing the much needed insurance against prominently occurring scarcity conditions. Parallel to crop production Animal Husbandry is the most important activity in Rajasthan. Income from live stock accounts for 30 to 50% of the rural household's income, with wide variation in region to region.

Rajasthan is the largest Indian State having a geographical area of 34.2 million hector, having 10% of the total area of the country. It supports 5.5% of India's human population and about 11% of the country's livestock population.

Agriculture and allied activities, however, remain the primary and major economic activity in the state; this sector provide livelihood to 66% of the State's population. Because of the limited water resources, most of the agriculture production is rain-fed & as such, the livestock sector assumes more importance.

Livestock rearing is the major component of arid agriculture. Animal husbandry enhances the economic viability & sustainability of farming systems particularly in rain fed areas. In arid western region, livestock farming essentially works as an insulating factor against vagaries of drought and famines, & provides a kind of stability and sustenance livelihood to the rural poor. In Rajasthan, income from livestock averages 22.5 per cent of the total household income, whereas in arid region the contribution of livestock sector is even more than 50 per cent of the total household income.

Livestock sector has also the highest potential for rural self-employment generation at the lowest possible investment per unit. Development of Livestock Sector therefore, is critical path way to rural prosperity.

The Animal husbandry sector is harbouring a fabulous livestock wealth having very significant role in providing subsidiary to major sources of income to the large numbers of cultivators, small farmers, marginal farmers and agricultural labourers. Milk enterprise

generates income on regular basis as against the crop enterprise, which is mostly seasonal and is more prone to droughts. The provision of assured market for the milk leads to their increased participation and the availability of cash income encourages them to take up to social development programmes.

In Rajasthan animal husbandry is major economic activity contributing about 11 percent of the State's net Gross Domestic Product.

LIVESTOCK WEALTH OF THE STATE

The state is endowed with finest drought hardy milch breeds (Rathi, Gir, Sahiwal and Tharparkar), dual purpose breeds (Kankrej and Haryana) and the famous drafts breeds of Nagori and Malvi.

Livestock production in general and cattle and buffalo in particular is highly women oriented as it is labour intensive. Over 85% of household's chores related to the care and management of milch animals in livestock owning households are dealt by female. 60% of all labour engaged in rural livestock production is women. Live stock sector in Rajasthan is thus extremely livelihood intensive, closely interwoven into the social economical fabric of the rural society, making investments in development of this Sector the critical pathway for rural prosperity.

The state of Rajasthan is rich in livestock wealth. State is blessed with the best breeds of cattle, sheep & camels of the country. As per livestock census 2012, State has about 10.76% of the livestock of the country. State contributes 11% of milk, 35% of goat meat & 30% of wool of the nation's production.

As against 25 well-defined breeds of cattle & 7 breeds of buffalo in the country, the state is endowed with eight well-defined & best breeds of cattle and two breeds of buffalo. Small Ruminants, sheep & goats, constitute 57.6 % of the total livestock of Rajasthan. There are eight well-defined breeds of Sheep, which produce quality carpet wool, and four breeds of goats. The home tract of camel, the ship of desert, is in Rajasthan.

Efforts of the Animal Husbandry department' are focused on increasing the out stretch through creation of institutions and infrastructure to provide an integrated package of

services for efficient health care and genetic improvement of livestock along with awareness building programmes to ensure better participation of the livestock owners.

VETERINARY INSTITUTIONS IN RAJASTHAN

INSTITUTIONS	1961	1992	2003	2008	2015
Polyclinic	0	8	12	14	34
Ist grade Veterinary Hospitals	0	21	175	174	775
Veterinary Hospitals	155	988	1238	1545	1518
Veterinary Dispensary	115	350	285	-	202
Veterinary Sub Centre	0	120	1727	1862	2167
District Mobile Veterinary Unit	0	0	0	0	34
Tehsil Mobile Veterinary Unit	0	0	0	0	288
TOTAL	270	1487	3437	3595	5018

LIVESTOCK PRODUCTION:

Year	Milk Production (thousand tones)	Meat Production (thousand tones)	Egg (Millions)	Wool Production (Lac Kg)
1995-96	5449	32	436	174
2000- 01	7455	51	572	194
2005- 06	8581	68	710	153
2010-11	13900	104	670	123
2012-13	13946	152	1034	140
2013-14	14574	175	1190	150
2014-15 (Tentative)	16935	186	1320	145

COMPARATIVE AVERAGE MILK PRODUCTION: (Kg/day/animal)

	Rajasthan	1st Rank	2nd Rank	3rd Rank
Indigenous Cattle	3.68 Third	Punjab (5.64)	Delhi/Haryana (4.68)	Rajasthan/ Gujarat (3.68)
Crossbred Cattle	7.75 Fifth	Punjab (10.54)	Chandigarh (8.97)	Meghalaya (8.96)
Buffaloes	5.76 Fourth	Punjab (8.51)	Haryana/ Delhi (6.66)	Kerala (5.85)

Goals and Objectives:

The major objectives of the department are:-

1. Livestock Health and Management
2. Conservation and Improvement of Indigenous livestock
3. Productivity enhancement and value addition in livestock products
4. Capacity Building of staff and livestock breeder & Employment Generation
5. Fodder development

Major Achievements

- A separate Veterinary University has been established at Bikaner in 2009-10.
- The breeding policy of sheep and goat is implemented in the state.
- State livestock policy for Rajasthan has been prepared and released.
- For quality Artificial Insemination programme, timely distribution and storage of Liquid Nitrogen gas / frozen semen has been strengthened.
- For the conservation and improvement of Indigenous cattle four Indigenous Cattle Breeding Farms of Rathi, Kankrej, Gir and Tharparkar have been established by

Veterinary University. For Sahiwal breed of indigenous cattle a new breeding farm will be established in this year.

- Embryo transfer and DNA finger printing lab at veterinary college Bikaner have been established for identification of true breed.
- Extension and strengthening of Veterinary Education through private sector has been developed.
- For the conservation and propagation of Jamunapari goat a scheme has been started at Kumher (Bhartpur Farm) and elite bucks are being distributed for breed improvement in Bhartpur, Dholpur, Karoli, Swaimadhopur and Alwar districts.
- State level Livestock Breeders Training Institute at Jodhpur has been established.
- Free distribution of medicines for the treatment of livestock has been started from 15.8.2012.
- Rural Veterinary Polyclinic at Go rehabilitation centre Hingonia, Jaipur has been established.
- All district first grade veterinary Hospitals have been upgraded in to Veterinary Polyclinic.
- Reorganisation of departmental higher posts has been done through rationalisation.
- At all divisional HQ (7) and other 7 districts (Total 15) Surgical mobile veterinary unit and rest all district HQ including kuchamancity (19) District level mobile have been sanctioned and started working from 17-6-2013.
- Veterinary Mobile Units has been sanctioned and started at 288 tehsils of the state.
- For conservation of cattle and foeder development in the state, a separate directorate of Go seva has been established.
- A subsidy of Rs.145.00 crore has been sanctioned for conservation of cattle in Goshalas for the period 2013-14.
- To expand the veterinary services in the rural areas of the state, Up-gradation of 620 Veterinary Hospitals to First Grade Veterinary hospitals, 600 Veterinary sub centres to Veterinary hospitals and 285 sub centres as well as 1100 new Veterinary sub centres has been established.

Development Constraints

- Low productivity and very large numbers of unproductive animal holding are major developments constraints facing the sector across all species. Almost 60% of all cattle and about 80% buffaloes are nondescript and have very low milk and work output.
- Compounding low productivity further is the tiny stock holding and also shrinking of common grazing lands over a period of time. This has widened the gap between demand and supply of fodder.

Major Animal Husbandry Activities:

- Pashudhan Nishulk Arogya Yojana
- Pashudhan Arogya Chal Ekai
- Artificial Insemination
- Castration of Scrub Bulls
- Infertility Camps
- Cal Rally and Milk Yield Competitions
- Buck / Bull/ Pigs and Ram distribution for breed improvement
- Gaushala Development
- Poultry, Horse and Camel development
- Fodder development
- Livestock Marketing / Organisation of major Cattle Fairs
- Livestock breeders Training Programme
- Extension Activities
- Treatment of animals
- Vaccination
- Treatmentt and Infertility camps where there is no facility of Veterinary Institutions
- Milk Recording
- Disease diagnosis
- Livestock and livestock breeders Insurance

Major Centrally Sponsored Schemes (CSS)

- Assistance to State for control of Animal Disease (ASCAD) (75:25)
- Sample Survey for Estimation of Livestock Product (50:50)
- Professional Efficiency Development (Veterinary Council) (50:50)
- Rinder pest Survey (100 %)
- Live Stock Census (100 %)
- Fodder Development (100 %)
- Establishment and Strengthening of Veterinary Hospitals and Dispensaries (ESVHD) (75:25)
- National Animal Disease Reporting System (NADRS) (100 %)
- Brucella Control Programme (100 %)
- FMD-CP (100%)
- PPR-CP(100%)

Dairy Development

- Rajasthan cooperative dairy federation established in 1977
- Maximum procurement in northern India
- Saras a well Established and leading brand
- 21 Milk Unions
- 18,803 Villages Covered
- 13,515 Registered Societies
- 5,175 Women Societies (of total)
- 8,499 Functional Societies
- 3,784 Proposed DCS
- 7.3 Lac Farmer Members
- 2.6 Lac Women Members (36%)
- 3.5 Lac Pourer Members
- 5.0 Lac SC, ST & OBC members (68%)
- 18,166 Marketing Outlets in Rajasthan

- 19.5 Lac litres / day Pasteurisation capacity
- 26 own & 9 Hired Chilling Centres
- 6.25 lac litres / Day Chilling Capacity (own)
- 3.5 lac litres / Day Chilling Capacity (hired)
- 65 mt / Day Drying Capacity
- 5 Cattle Feed Plants
- (Ajmer, Bikaner, Bhilwara, Nadbai, Jodhpur)
- 1350 mt / day cattle feed production
- New cf plant of 150 mtd at pali(Under construction)
- 7 Training centres
- (Ajmer, Bhilwara, Bikaner, Jaipur, Jodhpur, Kota, Udaipur)
- 25 Lac doses / annum frozen semen bank, Bassi
- 10 Lac doses / annum frozen semen bank, Narwa
- 3 Qtl / day seed processing

RCDF, Social Security of Milk Producers

- Saras Suraksha Kavach' Non Life Since 2003
- Current phase – SSK-XII
- 1,41,670 farmers covered in phase-xii (may 2015)

COVERAGE:

- Accidental death - 1 lac
- Spouse accidental death - 50 thousand
- House hold goods - 30 thousand
- Cash in Transit - 10 thousand
- Members Insured - 1.30 lac
- Premium paid (@ ` 36) - 46.93 lac
- Number of Claims Settled - One
- Amount Received - One Lac

RCDF's & Milk Unions' share of premium @ 12.5% each for general & 20% for women, SC & ST

RCDF, Social Security of Milk Producers

- Saras Suraksha Kavach' life (Janshri) Since 2003
- Current phase – SSK-XII
- 1,35,413 in phase xii members covered (June 2015)

Coverage:

- Natural Death - 30 thousand
- Accidental Death - 75 thousand
- Permanent Disability - 75 thousand
- Scholarship for 2 child. - 100 per mnth/child
- Members Insured - 1.42 Lac
- Number Claims Settled - 57

- Amount Received - 18.45 Lac
- Premium paid(@ ` 100) - 141.67 Lac

RCDF's & Milk Unions' Share of Premium @ 12.5% Each For General & 20% For Women, Sc & St

RCDF, Social Security of Milk Producers

- 'Saras Samuhik Arogya Bima' (Mediclaime) Since 2005
- current phase – SSABY IX
- 46,923 members covered (june 2015)
- members include self, spouse & 2 children

COVERAGE:

- Critical Diseases - up to 2 lac
- Other Diseases - up to 1 lac
- Members Insured - 46923
- Premium Paid - 808.52 lac
- Number of Claim Settled - 4478
- Amount Received - 783.32 Lac

RCDFs & milk unions' share of premium @ 20% each

Financial Requirement

S.No.	Particulars	Amount Rs in Crores)
01	Financial Requirement for next five years upto 2020-21 for "Strengthening of Infrastructure"	1676.00
02	Financial Assistance and interest free Working Capital for the year 2015-16	500.00
03	Reimbursement of interest on the Working Capital for the year 2015-16	25.00
04	Financial Assistance for Reprocessing of approximately	25.00

	8000 MT SMP for the year 2015-16	
	Total	2226.00

FINANCIAL REQUIREMENT FOR NEXT 5 YEARS UPTO 2020-21

S. No.	Particulars	Amount (Rs. in lacs)
	Strengthening of Infrastructure	
1.	Procurement	76572
2.	Processing	76900
3.	Marketing	9100
4.	Quality Assurance	5000
	Total	167572

Financial Requirement: Procurement

S. No.	Particular	Amount
1.	Formation of DCS (15000 @0.2)	3000
2.	BMC Installation (3123 @ 7.5 L)	23522
3.	AMCU /Milk Testing equipments (21000x1.3)	27300
4.	Adulteration detection instrument (4500x1.5)	6750
5.	Milk analyzer (14x25)	350
6.	Entrepreneur Resource Planning System (22x200)	4400
7.	Real time online system BMC level (4500x2.5)	11250
	Total	76572

Financial Requirement: Processing

S. No.	Milk Unions	Amount
1.	Ajmer	1500
2.	Alwar	900
3.	Banswara	100
4.	Barmer	800
5.	Bharatpur	600
6.	Bhilwara	1200
7.	Bikaner	1200
8.	Chittorgarh	600
9.	Churu	300
10.	Ganganagar	900
11.	Jalore	900

S. No.	Milk Unions	Amount
12.	Jaipur	17500
13.	Jhalawar	200
14.	Jodhpur	600
15.	Kota	600
16.	Nagaur	1000
17.	Pali	600
18.	Sawaimadhopur	200
19.	Sikar	600
20.	Tonk	600
21.	Udaipur	600
22.	Metro Dairy	30000
	Total	61500

Financial Requirement: Powder Manufacturing

S. No.	Milk Unions	Amount
1	Ajmer	5000
2	Alwar	700
3	Bikaner	700
4	Ganganagar	1500
5	Jalore	1500
6	Kota	2000
7	Pali	2000
8	Udaipur	2000
	Total	15400

Financial Requirement: Marketing

S. No.	Particulars	Amount
1.	Visi Coolers 10000 @ 25000 per unit	2500
2.	Mobile Van 20 nos. @ 30 Lac per van	600
3.	Advertisement & Publicity	5000
4.	Cold Chain for distribution	1000
	Total	9100

Financial Requirement: Quality Assurance

S. No.	Particular	Amount
1	Packing Material Testing Laboratory	4000
2	QC Equipments (for cattle feed & milk and milk products)	1000
	Total	5000

Warehousing

- a. **Basic Information of Rajasthan State Warehousing Corporation:** RSWC is operating 91 centres at various locations in the state with the total storage capacity 9.25 lac Metric Tonnes. RSWC is committed to ensure food security by creating warehouses infrastructure for strengthening storage facility to ensure safe and scientific storage of food grains.
- b. **Requirement of Storage capacity in next 5 Years :** As per NABCONS (NABARD CONSULTANCY SERVICES PVT LTD) assessment of warehousing requirement to ensure food security and PDS in the state of Rajasthan, the total estimated warehousing gap is 22.40 lakhs MT. Out of it RSWC has taken up the construction of 4.95 Lakh MT capacity in first phase.
- c. **Financial Requirement :**

Total Capacity to be constructed as per NABCONS Report (Lac MT)	Capacity taken up in the first Phase (Lac MT)	Remaining Capacity (Lac MT)	Land Required in Bigha (@ 1.75 Bigha per 500 MT)	Funds Required Rupees in Crores (@ Rs. 6000 per MT)
22.40	4.95	17.45	610.75	1047.00

Ajeevika Vikas

In Rajasthan, a society has been created under the aegis of Government of Rajasthan (GoR), named "Rajasthan Grameen Ajeevika Vikas Parishad" with an objective to remove poverty in rural area. RGAVP has analyzed the situation of poor in Rajasthan and has made a roadmap of about 10 years for uplifting all poor out of poverty from rural Rajasthan. Though the society was created in year 2010, it started its operation after due planning in year 2013 and has prepared a phasing plan in consultation with State Govt. & Gol. Hon'ble Chief Minister of Rajasthan is the chairperson of this society.

Skill Development Trainings are organized by this Parishad on Various Subjects. Special trainings are also organized for Women empowerment.

Energy

New Agriculture Connection Policy may be developed so that a proper view may be taken for releasing Agriculture connections. In the policy, an appropriate provision may be proposed to give priority to those farmers who adopt water saving devices such as Drips, Sprinklers on their fields in release of agriculture electricity connections.

WATER RESOURCES

Background:

Rajasthan is the largest State of the country. The status of water in the State is most critical. Rajasthan with more than 10.4 % of the country's geographical area, supporting more than 5.5% of the human population & 18.70 % of the livestock has only 1.16 % of the total surface water available in the country. 2/3rd part of the State is a part of the Great Thar Desert which is bigger than most of the states except MP, UP, AP and Maharashtra. This further aggravates the water crisis.

The ground water condition in the state is quite alarming. The condition has deteriorated in last two decades. The stage of ground water exploitation, which was just 35 % in the year 1984, has reached a level of 138% in 2008. Out of 243 blocks in the state, only 25 blocks are in safe category. This calls for immediate remedial measures to address the critical water resources situation in the State. Rajasthan has always been a water deficit area. The rainfall is erratic and there is large variation in the rainfall pattern in the State. The average annual rainfall ranges from 100 mm in Jaisalmer to 800 mm in Jhalawar. Average annual rainfall of the State is 531 mm. For the 22 eastern districts, it is 688 mm whereas for the remaining western districts, the rainfall is only 318 mm. The State has witnessed frequent drought and famine conditions in the past fifty years. Ground water is not available in many parts even for drinking purpose.

The per capita annual water availability in the State is about 780 cubic meters (Cum) on the basis of projected population July, 2009 against minimum requirement of 1000 cum. The availability would fall below 450 cum by 2045.

Present Activities of the Department:

To increase the irrigation area in the State, the Water Resources Department since past many year has been adopting a two pronged strategy as under:-

A. Creation of new command area by tapping the surplus surface water. Moreover to satisfy the drinking water and industrial needs.

B. Taking up works for improving the water use efficiency to fulfill the demand of irrigating, drinking water and industries.

A. Creation of new command area by tapping the surplus surface water:-

- The available surface water in Rajasthan State is 25.38 BCM. Out of this available surface water, 14.547 BCM water has been tapped by 24 major irrigation projects, 84 medium irrigation projects and 3324 minor irrigation projects. 17.88 BCM water is available in state by interstate agreement.
- The total culturable land of the State is 257.00 lac hect. and out of this, 38.20 lakh hect. has been covered through canal irrigation. 68.74 lakh hect. by tube wells/open wells/ talab and 1550.06 lakh hect. land is rain fed. Thus, at present 58.39% culturable land is rain fed.
- To tap this surplus water the following schemes are in progress:
 - a. Narmada Major Irrigation Project covering 2,46,000 hect. CCA 239000 hect. CCA has been opened.
 - b. 6 Medium Irrigation Projects covering 40,031 hect. CCA.
 - c. 49 Minor Irrigation Projects covering 46,846 hect. CCA.
 - d. The department has under taken the works of “Four Waters Concept” to use the surplus water the Mahi, Chambal, Luni, Sukli and West Banas basins by constructing 267 MI tanks and 413 check dams to create additional command.

Future Targets:

- In next five years 1,10,000 hect. Additional land will be covered by canal irrigation by the ongoing projects. The following new projects are in pipeline to be started in next five years:-
 - a. Two major irrigation projects i.e. Kalisindh Phase II and Parwan.
 - b. Three medium irrigation projects.

- c. Four proposals of intra linking of rivers to transfer the water from surplus basins to deficit basins have been prioritized
- d. New works under Four Waters Concept of Sabarmati Basin.

B. Taking up works for improving the water use efficiency:

To improve water use efficiency many projects have been taken up in the State in the past viz. Rajasthan Water Sector Restructuring Project (RWSRP), Japan International Co-operation Agency (JICA), Repair, Renovation and Restoration of old water bodies. Extension, Renovation & Maintenance (ERM) projects, On Farm Development (OFD) CAD, CAD WM works.

The department has implemented pilot sprinkler irrigation projects in 24 minors of IGNP Stage II lifts in 28,732 hect. CCA.

The following works for improving water use efficiency are in progress:

- (i) 32 numbers of old water bodies are being repaired under RRR project of GoI amounting to Rs. 90 crore.
- (ii) CAD WM works in 1.6 lakh hect. CCA is under progress.
- (iii) Revamping of Chambal canal system amounting to Rs. 1274 crore is in progress.
- (iv) 113 number of works under ERM is in progress.
- (v) Narmada Irrigation Project has been designed on sprinkler irrigation covering 2.46 lakh. hect. CCA.

The following proposals are under pipelines for improvement of water use efficiency:-

- (i) 77 projects are to be proposed under RRR to GoI.
- (ii) 5 projects to be taken up under ERM under State Plan.
- (iii) 22 projects are to be proposed under ERM to GoI.
- (iv) Taking cue from the success of pilot sprinkler irrigation project an area of 3.2 lakh hect. of 6 lift schemes of IGNP state II will be covered by

pressure irrigation technology with an estimate cost of Rs. 2012.56 crore and will be partially funded by MoWR, GoI. Under CADWM.

- (v) A policy is being prepared to cover the command of existing irrigation projects by pressure irrigation in phased manner.
- (vi) The pressure irrigation is to be mandatory in new irrigation project.
- (vii) 433 nos. of project have been proposed under JICA II.
- (viii) The department is envisaging a separate policy in desilting of dams/tanks to ensure to utilize full storage capacity of structure.
- (ix) Construction of lined water courses in CCA of 1,13,420 hect. of Bhakhra canal systems.
- (x) Construction of lined water courses in CCA of 1,64,337 ha of Gang Canal Project.
- (xi) Relining of Indira Gandhi Feeder (Punjab Portion) and Sirhind Feeder.
- (xii) A hydrology project has been sanctioned to scientific study of rainfall to determine accurate availability of water. The project is being funded by World Bank.

Issues which need attention:-

- **State Government.**

- (i) O&M budget is to be increased to bridge the gap between irrigation potential created & irrigation potential utilized.
- (ii) Sufficient budget has to be provided for taking up renovation and rehabilitation works of Major, Medium as well as minor irrigation projects.
- (iii) Small irrigation tanks transferred to Panchayati Raj Bodies need to be given priority in repair & maintenance budget allocation.

- **Central Government.**

- (i) The project proposals of CADWM to be cleared by MoWR, GoI expeditiously.

- (i) The central assistance of ongoing projects are need to be reimbursement of expenditure.
- (ii) For all the GoI financed programme, the Rajasthan State needs to be given special category State so that Central sponsored schemes can be implemented effectively with 90% Central share as the State is largest in Geographical area and is water deficit also.

Identification of Areas For The Role of Private Sector:-

The private sector can play an important role in water sector in following two ways:

- By way of corporate social responsibility.
- Through PPP mode.

The projects under Four Waters Concept can be taken up by industries under corporate social responsibility and the project proposals of pressure irrigation and interlinking of rivers can be taken up through PPP mode.

Besides, the above proposals, it is difficult to take up the other proposals under PPP mode because of the low irrigation rates which will cause the unviability of the proposal.

Physical Goals of next five years :-

(A) New CCA creation-

CCA in hect.

I year	II year	III year	IV year	V year	Total
23000	20000	25000	25000	16000	110000

(B) Improvement irrigation efficiency:-

	Unit	I year	II year	III year	IV year	V year	Total
Pressures Irrigation	Hect.	100000	120000	100000	50000	50000	420000
CADWM	Hect.	40000	70000	70000	70000	70000	320000
revamping of Chambal Canal	Kms.	214	200	200	200	200	1014
RRR	No. of Projects	17	15	15	20	20	87
ERM (New Works)	No. of Works	33	15	15	15	15	93
JICA	No. of Projects	-	-	-	-	50	50

(C) Financial Requirement for Next Five Years:

(Rs. In Crores)

Year	I year			II year			III year			IV year			V year		
	IGNP	WR	CAD	IGNP	WR	CAD	IGNP	WR	CAD	IGNP	WR	CAD	IGNP	WR	CAD
State share	481	931	166	558	1020	295	510	1100	295	220	1200	295	250	1330	295
Central share	314	224	52	378	250	80	310	275	80	-	300	80	-	330	80
Total	795	1155	218	936	1270	375	820	1375	375	220	1500	375	250	1660	375

Besides, the three externally aided projects viz. EU (SSP), JICA II and National Hydrology are in progress / proposed during next five years.

AGRICULTURAL MARKETING

The primary marketing of agricultural produce is being facilitated by 133 principal and 312 sub market yards spread across the state of Rajasthan. The average area served by a regulated market is 717 sq kms, however it varies from area to area depending upon the marketable surplus available. It ranges from 295 to 1043 sq km/market in most of the districts except 1202 to 7680 sq km in districts of western Rajasthan (Churu, Bikaner, Jodhpur, Barmer and Jaisalmer) where larger area is covered by Thar desert. Lack of surface water and depleting ground water restricting the crop husbandry and the resultant lower marketed surplus have also been a reason for developing lesser number of market yards. Thus, for increasing penetration of regulated market for providing increased access to farmers, greater financial support to create infrastructure is required. The trade of the notified agricultural commodities is governed by the Rajasthan Agricultural Produce Markets Act, 1961. There are only three types of charges levied in the primary markets namely market fee (0.50% to 1.60%), commission by commission agent (1.0% to 2.0%) and labour charges paid to labourer for handling on actual basis. Market fee and commission allowed varies from crop to crop depending upon the State policy of market development for some crops or for help the rural poor who are the major consumers of the coarse grains as staple food. The list of crop wise charges is enclosed. A fine comparison of all these charges reveals that barring the labour charges, these are range bound from 1.5% for coarse grains, cumin and Isabgol to a maximum of 3.6% for other commodities. Exceptionally the commission allowed for fruits and vegetables is 6% and the market fee has been completely waived. Even the trade of fruits and vegetables out of the market yard premises have been allowed and such trade shall not attract the provisions of APMC Act. As such, marketing charges under Rajasthan APMC Act seems to be reasonable. To encourage production and lower the cost of domestic edible oils, the market fee on oilseeds has been reduced to 1.0%.

Most of the reforms suggested by Central Government in Model APMC Act in year 2003 to reduce the intermediaries in supply chain and enhance the private sector investment, have been incorporated in Rajasthan APMC Act in the year 2005.

Rajasthan has been one of the pioneer State to amend its APMC Act. The details of the reforms adopted and progress is enclosed.

S. No.	Particulars	Status
i)	Contract Farming	Provision made u/s 22-N but No contract farming agreement registered so far.
ii)	Farmer-Consumer Markets	Provision made u/s 5-B. One market namely M/s Mali (Saini) Seva Sansthan Subji Mandi, Piparcity (District-Jodhpur) established on 11 July, 2008 and functioning till date.
iii)	Direct Marketing	Provision made u/s 14 (2) (a) and 76 licenses have been issued so far.
iv)	Setting up of Markets in Private and Cooperative Sector	<p>Provision made u/s 5-A. Two licences have been issued for setting up private sub market yards namely:</p> <ol style="list-style-type: none"> 1. M/s Marudhara Private Sub Market Yard at Nohar (APMC, Nohar) – under construction 2. Pashupati Realtrade Pvt. Ltd. for Private Sub Market Yard at Pallu, (APMC, Rawatsar) – Functional 3. NWC Sub Market Yard, Deegod (Kota) – under construction
v)	E-trading and progress in respect of	For setting up of e-Sub Market provision made under Rule 56-B and 3 licences issued of which two have been surrendered. Active licence is - NCDEX Spot Exchange Limited (NSPOT)
vi)	Single Unified License	Provision made under Rule 63 and one licence to ITC Ltd has been issued.

vii)	Single Point Levy of Market Fee	There is a single point market fee system in the State since 01.10.1991.
viii)	Status of deregulation of Fruits & Vegetables	The market fee on Fruits & Vegetables has been exempted and the process of levying user charge is being introduced for the Fruits & Vegetables sold in the principal and sub market yards.
ix)	Waiver of Market Fee	Market fee has been rationalized depending upon the nature of produce. The present market fee structure on various commodities is as under:

Market Fee and Commission structure allowed in Rajasthan APMC Act

S.No.	Commodity	Market Fee	Commission allowed	Total admissible charges (Except labour)
1	Fruits	exempted	6%	6%
2	Vegetables	exempted	6%	6%
3	Wool	0.01 %	2%	2.01%
4	Jowar, Bajra, Maize, Isabgole and Cumin	0.50 %	1%	1.50%
5	Oilseeds	1.00 %	2%	3.0%
6	Other notified commodities	1.60 %	2%	3.6%

The issue of creation of a Unified National Agriculture Market has recently come up. For digitalizing the primary market functions and connecting all the APMCs of the State to adopt a real time display and auction system on Pan India basis, a project named Rajasthan Integrated Mandi Management System is under operation. Under this project, initially 5 markets have been covered and 15 more markets shall be covered in the current financial year. In next 2-3 years, all the APMCs of the state shall be networked and online display and auction system shall take place.

Additionally as desired in the covering letter, following schemes being operated in the state for inclusive welfare of farmers and labourers engaged in agricultural and marketing operations may also be communicated to the NITI Aayog for further dissemination.

1. Rajiv Gandhi Krishak Sathi Yojna
2. Kisan Kalewa Yojna
3. Jyoti Rao Phule Shramik Kalyan Yojna

Copies of the Schemes is enclosed.

Logistics and Cold Stores in Rajasthan

Out of the total area of 34224 thousand hectare of Rajasthan, net sown area is only 16974 thousand hectare with a cropping intensity of 126% which is below the national level of 139%. With increase in area under crop production and crop intensity on account of increased irrigational facilities, the total production of the crops is likely to increase and resultantly require more logistic support to handle the volume. At present, Rajasthan is ranking I in production of Mustard, Guar and Bajra, II in Gram, III in Soyabean, IV in Ground nut and Maize, V in Wheat and VII in Cotton. Among the spices State is largest producer of coriander, cumin, isabgol, fenugreek and also a significant producer of chillies, fennel and ajwain.

There is a felt need of addressing the various Post Harvest Management issues to take care of increasing post-harvest losses in absence of suitable logistic support and to provide better pricing to the farmers of their produce. This includes timely and speedy movement of goods to the marketing destination and keeping them safe for

availing in the off-peak season. The seasonality in production and perishable nature of agriculture and horticulture produce make it imperative.

Rajasthan state has 10 different agro climatic zones with different crop production advantage.

Production of various crop groups is as under:

Production and Market Arrival of crops in Rajasthan				
(Qty in '000' MT)				
S. No.	Crop Group	Production	Market Arrival	%
1	Cereals	17433	5272	30.24
2	Pulses	1668	683	40.95
3	Oilseeds	5507	3112	56.51
4	Spices	713	385	54.00
5	Gur		131	
6	Sugar, Khand		832	
7	Cotton	640	530	82.81
8	Guar	2862	878	30.67
9	Fruits & Vegetables		2328	

Besides this, Rajasthan being largest State in India and having 686 lakh population is also significant consumer of various agri/food commodities and that too require logistic support for handling, storage and distribution. Such main items are gur, sugar, chillies, fruits etc.

The availability of the cold stores in the State is as under:

Total No. and Capacity of Cold Stores in Rajasthan			
Capacity in '000' MT)			
S. No.	Division	Numbers	Capacity ('000' MT)
1	AJMER	15	10.639
2	JAIPUR	32	274.910
3	SIKAR	4	12.450
4	ALWAR	31	176.240
5	KOTA	10	46.000
6	UDAIPUR		
7	JODHPUR	3	13.500
8	BIKANER	10	56.565
9	HANUMANGARH	1	2.000
10	SRI GANGANANAR	8	
		122	592.304
Out of which:			
1	RSAMB/APMC	13	30.060
2	Private Sector	109	562.244

The perishable horticultural crops requires establishment of packhouses, pre-cooling units, Cold rooms, Mobile pre-cooling units, Cold storages, Processing Units, Ripening Chambers, Low Cost Onion Storage, etc. At the same time, Rajasthan being highest mustard producing state (44%), Soyabean (11.28%), ground nut (11.65%) and India being net importer of edible oils, the logistic support to these commodities also required. Rajasthan State Agricultural Marketing Board has also constructed 4 pack houses - 3 in Jaipur and 1 in Tonk district having cleaning,

grading, sorting and a cumulative 1060 MT cold storage capacity. The maximum number of cold stores are in Jaipur, Bharatpur and Dholpur districts.

There are 133 Agricultural Produce Market Committees (APMCs) with 133 principal and 311 sub market yards covering entire state.

On the basis of market arrival of crops, the major area/market may be classified into following broad categories:

Horticultural Crops:

Coriander: Kota, Baran, Jhalawar and some part of Bundi and Chittorgarh districts are the main producing areas.

Cumin: Jodhpur, Jalore, Pali, Nagaur, Barmer, Ajmer districts are the major producer of cumin.

Fenugreek: Nagaur, Jaipur, Sikar

Azwain: Bhilwara, Pratapgarh, Chittoregarh

Isabgol: nagaur, Jodhpur

Chillies: Jaipur, Ajmer, Bhilwara, Swai Madhopur

Oranges : Jhalawar

Kinnow: Sri Ganganagar, Hanumangarh

Guava: Swai Madhopur

Aonla (Indian Gooseberry): Jaipur

Onion: Sikar, Jaipur, Nagaur, Ajmer, Jodhpur, Alwar

Potato: Bharatpur, Dholpur

Non perishable crops:

Mustard: Alwar, Bharatpur, Kota, Baran, Bundi, Jhalawar, Chitoregarh, Sriganganagar, Hanumangarh, Pali.

Soyabean: Kota, Baran, Bundi, Chittoregarh, Pratapgarh

Wheat: Sri Ganganagar, Hanumangarh, Alwar, Bharatpur, Kota, Baran, Bundi

Barley: Jaipur, Dausa, Sikar, Hanumangarh

Moong: Nagaur, Ajmer,

Maize: Bhilwara, Chittoregarh, Pratapgarh, Rajsamand,

Guar: Sri Ganganagar, Hanumangarh, Churu, Bikaner, Jodhpur, Nagaur

Thus, looking to the scope especially in the crops in which state is having distinct production advantage viz., guar, coriander, cumin, fenugreek, azwain, mustard, gram, soyabean etc., there is an immense potential for warehousing and cold stores in the State of Rajasthan.

S.No.	Location	Capacity (MT)	Operational	Remarks
1	Jodhpur	6000	Yes	
2	Sikar	2000	Yes	
3	Udaipur	2000	Yes	
4	Alwar	4000	Yes	
5	Bhilwara	2000	Yes	
6	Sumerpur	1000	Yes	
7	Bhawani Mandi	4000		under construction
8	Barmer	4000		under construction
9	Jhalawar	4000	Yes	
Total		29000		

Cold Stores constructed by RSAMB

Pack houses constructed with APIDA assistance

S. No.	Location (KUMS)	Pack House	Cold Store capacity (MT)	Operational
1	Muhana (Jaipur)	Yes	120	Vacant
2	Hathnoda (Chomu)	Yes	120	Vacant
3	Sohela (Tonk)	Yes	700	on rent

4	Shahpura (Jaipur)	Yes	120	Vacant
Total			1060	

(C) Improvement in irrigation efficiency:-

	Unit	I year	II year	III year	IV year	V year	Total
Pressures Irrigation	Hect.	100000	120000	100000	50000	50000	420000
CADWM	Hect.	40000	70000	70000	70000	70000	320000
revamping of Chambal Canal	Kms.	214	200	200	200	200	1014
RRR	No. of Projects	17	15	15	20	20	87
ERM (New Works)	No. of Works	33	15	15	15	15	93
JICA	No. of Projects	-	-	-	-	50	50

(C) Financial Requirement for Next Five Years:

(Rs. In Crores)

Year	I year			II year			III year			IV year			V year		
	IGNP	WR	CAD	IGNP	WR	CAD	IGNP	WR	CAD	IGNP	WR	CAD	IGNP	WR	CAD
State share	481	931	166	558	1020	295	510	1100	295	220	1200	295	250	1330	295
Central share	314	224	52	378	250	80	310	275	80	-	300	80	-	330	80
Total	795	1155	218	936	1270	375	820	1375	375	220	1500	375	250	1660	375

Besides, the three externally aided projects viz. EU (SSP), JICA II and National Hydrology are in progress / proposed during next five years.

CO-OPERATIVE DEPARTMENT, RAJASTHAN

Introduction

The cooperative movement in India started more than 100 years ago in 1904 and started in Rajasthan soon thereafter. Rajasthan has been fortunate in reaping the benefits of this movement almost since its inception. In Rajasthan, there are almost 1.2 crore members in more than 32500 cooperative societies contributing in the economic development of the state through public welfare economic activities. Cooperative societies are running Credit, Marketing, Consumer, Dairy, Processing and similar activities through working capital of about 52742 crores. State government also runs various public welfare schemes and programmes through cooperative institutions. At present there are 22 State Level Federations, 29 Central Cooperative Banks, 21 Milk Unions, 36 Upbhokta Wholesale Bhandars, 36 Primary Land Development Banks (PLDB) 6398 Primary Agricultural Credit Societies (PACS) (Out of Which 580 Large Area Multi-purpose Co-operative Societies (LAMPS) are serving The People under TSP Area) and 267 Kraya-Vikraya Sahakari Samities (KVSS). Thus about 32500 co-operative societies are registered in the State including the above societies.

At present the cooperative movement is playing a vital role in many sectors of the economy viz. short term and long term credit for farmers; investment loans for better productivity of land; loan for agricultural inputs like fertilizers, seeds, insecticides/pesticides; marketing of agricultural produce, agro processing units and storage facilities. Apart from this, the cooperative movement is also playing a major role through consumer cooperatives and housing cooperative societies. Sector wise activities are as follows:

1. Short Term Credit

Agriculture is a basic activity in Rajasthan and credit plays an important role in increasing the agricultural production. Short term credit is such a big activity of the department that we can say it is a "Short term credit oriented department". This is facilitated through three tier systems in which Apex Bank is at the state level, whereas 29 CCBs & GSS are at the district and panchayat level respectively. As per NABARD policy ST loan is provided to the farmers @ 7% interest rate but

Government announced ST loan @ 0% interest to farmers in the year 2012-13 which is still continuing in which 4% of the share is shared by state government and 3% by central government respectively.

This policy boosted ST loaning by the volume of Rs. 16017.36 crore up to 2014-15 which was merely Rs. 2465 cr in 2008-09. Target fixed for the year 2015-16 is Rs. 17500 crore accordingly. Disbursement of short term crop loan will be increased to Rs.21000 cr by the year 2018-19. ST loan is provided through NABARD @ 40% of refinance which was 50% earlier. This reduction in refinance has posed a huge problem before the short-term co-operative credit institutions, because they do not have enough funds to meet the additional gap of 10%. Under pending issues with Government of India, Hon'ble CM Rajasthan has requested the Hon'ble Prime Minister of India to increase this refinance upto 75% because 40% refinance is not adequate for addressing the credit needs of the farmers in Rajasthan. On the other hand Rs. 257.53 crore of central assistance for the year 2013-14 is also pending for release on this account. The release of funds is also taking considerable time which impacts negatively on the financial health of the cooperative institutions.

To provide online services to the customers all branches of Apex Bank and DCCBs are now CBS enabled. In future ATMs will be established in all DCCBs. Under Bhamashah Scheme 7896 PACS/LAMPS and e-mitra kendras have been made Business Correspondents (BCs) for implementation of Direct Benefit Transfer (DBT) under various schemes to serve the remote rural residents better.

2 Long Term credit

Long Term credit for farmers is extended by Rajasthan State Land Development Bank Ltd. (SLDB) through its 36 PLDBs at district/sub-divisional levels for agricultural and allied activities like farm mechanization (tractor, power thresher, combine harvester), minor irrigation scheme (sprinklers, diggies, drip irrigation, pump sets etc.), diversified activities (land purchase, rural godown, dairy development, fisheries, poultry, piggeries etc.), non-farm activities (SRTO, small scale industries etc.) and rural housing. Rs. 900 crore will be disbursed as long term loans in coming three years. Hon'ble CM announced a new scheme of 5% interest subsidy to encourage

investment in agriculture and allied activities with initial provision of Rs.50 crore in the year 2014-15. A provision of Rs.30 cr. is provided for this purpose in the year 2015-16 too. This agriculture investment loaning will improve farm yields and standard of living of farmers.

On the recommendations of the Vaidyanathan Committee the Short Term credit structure was strengthened by investing additional funds into the system. However the Medium and Long Term credit structure is left untouched. Due to so many reasons, including natural calamity, drought etc., the recoveries over a period of time have affected the credit strength of the PLDBs. To tied over the situation it is urgently required that around Rs.300 crore are released by the government to square up the deficit and improve the balance sheet as stood at 31.3.2015.

3 Marketing

Agriculture input supply like fertilizers, seeds and pesticides is one of the major activities of cooperative sector which is being executed by Rajasthan State Cooperative Marketing Federation (RAJFED) at the state level and 267 Kraya Vikraya Sahakari Samities (KVSS) at block level and GSS at primary level. For timely and adequate supply to farmers, buffer stocking of Urea (564316 MT) and DAP (307299 MT) have been made by RAJFED since 2012-13.

In the coming three years distribution target of agricultural inputs by RAJFED are as follows:-

S.No.	Year	Target (MT)
1	2015-16	454157
2	2016-17	561537
3	2017-18	589613

Agricultural produce is also being purchased by RAJFED through KVSS on MSP and commercial rate. Since last three years, RAJFED is purchasing wheat on decentralized scheme by Food and Civil Supply Corporation in Alwar district through GSS/KVSS.

For the purpose of smooth functioning of MSP purchasing a revolving fund of about Rs. 200 crore is required.

4 Storage facilities through cooperative

As per the study report by NABCONS the total required storage capacity in the state is of 43.02 lac MT against which the state only possesses the capacity of 21.66 lac MT through central and state warehouse corporation, food corporation of India and cooperative societies. Hence 21.36 lacs MT storage capacity is still needed.

At present, cooperative sector in the state possesses 7953 godowns with the storage capacity of 874905 MT from grassroot to state level. In the year 2014-15 and 2015-16, Storage capacity of 20000 MT are being created by 200 societies at primary level. While at block level 10 godowns of 250 MT each are under construction by 10 KVSS. Thus, cooperative department will be able to provide additional storage capacity of at least 22500 MT in the state within the period of 2012-13 to 2015-16.

5 Integrated Cooperative Development Project (ICDP)

Integrated Cooperative Development Project (ICDP) was sanctioned in Rajasthan in 1993-94 with the assistance from NCDC. Under the scheme institutions ranging from grassroot level to state level is facilitated with funds for infrastructure (construction/repair of godowns, offices, shops, supermarkets, mini bank buildings, branch offices, etc), purchase of equipments (computers, furniture, cash counting machines and ATMs etc.) margin money support for enhancing their business activities and profitability and skill improvement of the employees and members concerned. Now all the districts of the State have been covered in this scheme. 16 ICDP Projects have been completed with an expenditure of Rs.15942.44 lacs by the year 2013-14. Rest of the 17 ICDP projects are under going in which expenditure Rs.25619.07 lacs have been incurred upto June, 2015. Jalore, Sikar and Banswara districts have been selected

for second phase of ICDP and proposal of these districts have been sent for sanction to NCDC. It will help to improve the cooperative structure in the State regarding infrastructure and profitability.

6 Planning (Provisions and Expenditure detail)

In the 11th five year plan (2007-2012) the expenditure was Rs 41571.55lacs against the provision of Rs 10000.00 lacs as follows:

Annual plan	Outlay	Expenditure (in lacs)
2007-08	1341.98	263.29
2008-09	893.83	834.37
2009-10	26270.21	26266.57
2010-11	6489.00	6410.01
2011-12	7874.81	7797.31
Total	42874.83	41571.55

As per 12th five year plan (2012-2017) Rs 36021.77 lacs were provided by the state government against which expenditure of Rs 130885.52 lacs has been made up to 2014-15, it shows the tremendous expenditure which is almost 4 times against the actual provisions upto 2016-17. The year wise annual plan details are as follows:

Annual plan	Outlay	Expenditure
2012-13	33457.62	32488.72
2013-14	48977.79	41175.68
2014-15	58850.23	57221.12

In the current year 2015-16 the provision of annual plan is Rs 58887.74 lacs.

After looking the total scenario of the department it is true that cooperative department is a "Short term credit oriented department". All the activities of the department are attached with the short term loaning. That's why government announced 0% crop loan facility to the farmers. As mentioned above delay in fund releasing impact negatively on the financial health of the cooperative institutions. So a cordial help is required regarding fund release in timely manner by state/centre government to the institutions especially by central government.

