NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

ARIYALUR

CENTRE FOR AGRICULTURAL AND RURAL DEVELOPMENT STUDIES
TAMIL NADU AGRICULTURAL UNIVERSITY
COIMBATORE -641 003

NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP / RKVY)

DISTRICT AGRICULTURE PLAN

ARIYALUR DISTRICT

CENTRE FOR AGRICULTURAL AND RURAL DEVELOPMENT STUDIES
TAMIL NADU AGRICULTURAL UNIVERSITY
COIMBATORE - 641 003

2017

CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

Well executed plan always brings fruitful results. And this is true when bottom up planning was done with the participation of the people living in the domain.

With the introduction of Rashtriya Krishi Vikas Yojana (RKVY) during 2007 –'08 by the Department of Cooperation and Ministry of Agriculture, Government of India, district level planning was done based on the critical feedback received from the villagers of each block of the district during stake holder meeting along with the outputs observed from both the ongoing operated at the block level and past development made. Through RKVY, many guidelines were given to follow to prepare the district plan and those were meticulously followed for the preparation of district level agricultural plan for District Ariyalur, one among the 32 districts of Tamil Nadu. It was bifurcated from Perambalur district during 2007 and being function as an independent district from 23.11.2007.

This district is located at central part of Tamil Nadu and the total area of the district is 1934.01KM^2 (193401 ha). The district is rich in mineral deposit and this adds sometimes weakness to agriculture also. District Agricultural Plan was done for this district for the 12^{th} plan by following methodology.

For each district one TNAU scientist and Joint Director of Agriculture of the district concerned have been nominated as District Level Coordinators and for each block one TNAU scientist has been also identified as block level scientist and linked to the concerned Assistant Director of Agriculture (ADA). These TNAU scientists and ADA's at block level assisted for conducting stake holders meeting at block level for collection and validating required information for plan document preparation, liaison with other line department officials and finalization of plans at various levels. One Technical Expert was also nominated for each district for guiding staff to prepare the document in reality. The names of the project team are given in the document elsewhere.

The list of schemes along with the financial allocation from various sources since 2012-'13 was obtained for both district level and block level. The block level details were then consolidated across the line departments to examine the implementation of the schemes and their potentials for further scaling up. SWOC analysis was also made for each block to identify new intervention in discussion with stake holders.

These plans were finalized by holding stakeholders meetings at different stages and

presented to District Collector for remarks and comments. Based on the comments of the Collector, the plan was revisited and improved further and presented.

In Chapter I, small introduction is given on the objectives of RKVY and rules and regulations to be followed for the preparation of Ariyalur district Agricultural Plan for 2017 – 2022 periods.

In Chapter II, profile of the six blocks and Ariyalur district are given including details on water bodies, demographic information, total cultivable area, irrigated area, dry- land area, information on climate, agricultural and horticultural crops, live stock, fisheries and available infrastructure facilities at the district.

In Chapter III, information on development of agriculture and allied sectors is given. Under this head, trends in area, production and productivity of major crops of the district, compound growth rate and projection of productivity of major crops,, projected production of both major Agricultural crops and Horticultural crops, Yield gap analysis and information on technology intervention done on this district are given.

In Chapter IV, the core chapter where in the District plan is given, where in the proposed interventions with budget are given with necessary back ground support. The five years total budgets for the period 2017-2022 come to ₹ 627.61 crores and this covers Agriculture, Horticulture, Agricultural Engineering, Agricultural Marketing, Animal Husbandry, Dairy development, Fisheries, Water resource development and Cooperatives. The budget requirement for development of agriculture and allied activities for Ariyalur district is presented here under.

Consolidated Budget for Ariyalur District **(₹. in lakhs)**

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	3972.16	2370.9	2060.42	2358.89	2812.35	13574.71
2	Agricultural Research (TNAU)	0.00	0.00	0.00	0.00	0.00	0.00
3	Horticulture	1513.29	1556.48	1697.82	1674.24	1745.79	8187.62
4	Agricultural Engineering	966.80	1165.88	997.65	990.86	1037.26	5158.45
5	Agricultural Marketing	1210.00	1209.00	1326.00	1140.00	1359.50	6244.50
6	Seed Certification and Organic Certification	0.00	0.00	0.00	0.00	0.00	0.00
7	Animal Husbandry	815.48	788.48	482.48	412.48	402.48	2901.40
8	Animal Sciences Research (TANUVAS)	0.00	0.00	0.00	0.00	0.00	0.00
9	Dairy Development	55.98	88.48	1590.43	88.30	124.10	1947.29
10	Fisheries	312.00	0.00	0.00	0.00	0.00	312.00
11	Fisheries Research (TNFU)	77.66	13.16	50.26	0.26	0.26	141.60
12	Water Resource Organization (PWD)	500.00	2000.00	400.00	20000.00	600.00	23500.00
13	Civil Supplies & Cooperatives	215.26	242.99	142.92	89.14	103.14	793.45
	Total	**9638.63**	**9435.37**	**8747.98**	**26754.17**	**8184.88**	**62761.02**

The total budget requirement for the implementation of various interventions by different departments in Ariyalur district is ₹ 62761.02 Lakhs.

CHAPTER I

INTRODUCTION

Rashtriya Krishi Vikas Yojana (RKVY) vis-à-vis National Agricultural Development Program (NADP) was initiated in 2007 as an umbrella scheme for ensuring holistic development of agriculture and allied sectors by allowing states to choose their own agriculture and allied sector development activities. The scheme has come a long way since its inception and has been implemented across two plan periods i.e. during 11th and 12th plan periods. Based on feedback received from States, experiences garnered and inputs provided by various stakeholders, schemes eligible for funding under RKVY have undergone modifications to enhance efficiency, efficacy and inclusiveness of the program.

The overall objectives of RKVY (NADP) are as follows:

Objectives of RKVY

a. To strengthen the farmers' efforts through creation of required pre and post- harvest agri-infrastructure that increases access to quality inputs, storage, a market facility etc. and enables farmers to make informed choices.

b. To provide autonomy, flexibility to States to plan and execute schemes as per local/ farmers' needs.

c. To promote value chain addition linked production models that will help farmers increase their income as well as encourage production/productivity

d. To mitigate risk of farmers with focus on additional income generation activities - like integrated farming, mushroom cultivation, bee keeping, aromatic plant cultivation, floriculture etc.

e. To attend national priorities through several sub-schemes.

f. To empower youth through skill development, innovation and agri-entrepreneurship based agribusiness models that attract them to agriculture.

District and State Agriculture Plans

As per the recent guidelines issued by the Government of India under Remunerative Approaches for Agriculture and Allied sector Rejuvenation (RAFTAAR), the new projects proposed and are to be implemented under NADP/RKVY must be in consonant with District Agricultural Plans (DAP), State Agriculture Plans (SAP) and State Agriculture Infrastructure Development Program (SAIDP) prepared by the individual States. Thus, such action-oriented plan documents will remain as a cornerstone of planning and implementation of the NADP/RKVY and other schemes.

The overall guidelines suggested by the Government of India to be followed for preparation of District Agriculture Plans (DAP) and State Agricultural under NADP/RKVY are as follows:

- The several states have already prepared Comprehensive District and State Agriculture plans for 12th Plan period. These plans have to be revised and updated appropriately for implementing RKVY-RAFTAAR during 14th Finance Commission keeping in view modification proposed for the plan period and emerging needs of the State.
- The District Agriculture Plan (DAP) shall not be however the usual aggregation of existing schemes but would aim at moving towards projecting the requirements for development of Agriculture and allied sectors of the district and for the State a whole.
- These plans would also present the vision for Agriculture and allied sectors within the overall development perspective of the district and further State as a whole.
- The District Agriculture Plans and the State level plan would also present their financial requirements in addition to sources of financing the agriculture development plans in a comprehensive way.
- The District Agriculture Plan will include animal husbandry and fishery development, minor irrigation projects, rural development works, agricultural marketing schemes and etc. keeping in view the natural resources and technological possibilities in each district.
- District level potential linked credit plans (PLP) already prepared by the National Bank for Agriculture and Rural Development (NABARD) and

Strategic Research and Extension Plans (SREP) developed under the Agricultural Technology Management Agency (ATMA) etc. may be referred for revision of DAPs.

- It should also be ensured that the strategies for convergences with other programs as well as the role assigned to the Panchayati Raj Institutions (PRIs) are appropriately incorporated in DAPs.

Therefore, each State will also have a comprehensive State Agricultural Plan (SAP) for the remaining period of the Fourteenth Finance Commission by integrating the District Plans. SAPs will invariably have to indicate resources that can flow from the State to the districts.

The Process

Revision and updating of SAPs could be a two-way process. Firstly, State Nodal Department (or Agriculture Department) could get DAPs revised in the first instance to ensure that priorities of the State are properly covered in the district plans. States should, at this stage of scrutiny, ensure that requirements of districts and priorities of the State are appropriately captured and aligned in DAPs. Alternately, State Nodal Agency could communicate to the districts in the first instance, the State's priorities that ought to be reflected in the respective district plans and the districts may incorporate these in their updated district plans. Preparation/revision of the DAPs need to be an elaborate, exhaustive and iterative process and care has to be taken by the State Nodal department and District Agriculture Department in ensuring that these plans cover the entire gamut of agriculture and allied sectors.

Revision and Updation of DAP and SAP in Tamil Nadu

Tamil Nadu State continued to receive Central Assistance under NADP/RKVY. The Government of Tamil Nadu also prepared District and State Agriculture Plans covering 11th and 12th Plan periods. Tamil Nadu State has 32 districts including Chennai. The District Agriculture Plan were prepared for 31 districts excluding Chennai during 12th plan period. Thus, the current exercise is the continuation of the 12th plan period: which also covered two years of the 14th Finance Commission period (2015-16 and 2016-17) and also keeping in view of the changing scenario in the development and emerging needs of the State and to be eligible for

fresh grants from Government of India. These plans were further revised and updated appropriately for implementing RKVY during the periods from 2017-18 to 2021-22.

Methodology followed

The revision of the District Agricultural Plan of Ariyalur district, was done by gathering the secondary data about district and block with respect to rainfall, land use pattern, demography, livestock, machinery, infrastructure so far created etc. In addition, the constraints in production and marketing of agricultural and livestock produce, crop/animal production and gaps between expected and actual yield and the reasons for such gaps were also discussed among the various stakeholders and incorporated in this plan document. Besides, in consultation with the line department officials and based on the data received from respective districts, a detailed year-wise action plan i.e. from 2017-18 to 2021-22 with physical and financial implications were presented.

CHAPTER II

PROFILE OF THE BLOCKS AND DISTRICT

2.1 Ariyalur at a Glance

Ariyalur district came into existence by the bifurcation from Perambalur district as per G.O.Ms.No.683 Revenue RA1 (1) Department dated 19.11.2007.

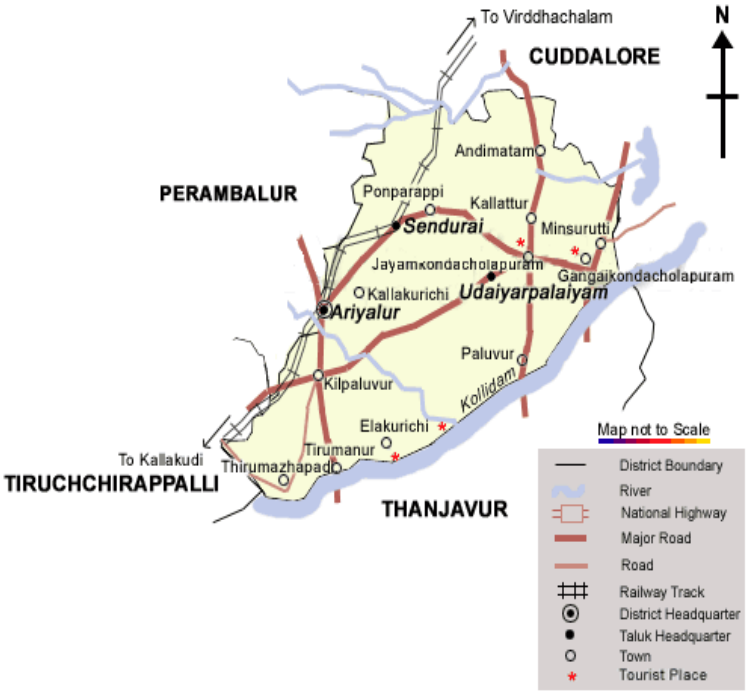

Fig 1.Ariyalur District Map

Ariyalur has been functioning as a separate district since 23.11.2007. Ariyalur district is located in central Tamil Nadu and is 265 km away from Chennai (Fig 1).

Ariyalur district consists of two Revenue Divisions *viz.,* Ariyalur and Udayarpalayam, three Taluks viz., Ariyalur, Udayarpalayam and Sendurai comprising of 195 Revenue Villages. The district has six blocks *viz.* Ariyalur, Thirumanur, Sendurai, Jayankondam, Andimadam and T. Palur comprising of 201 Village Panchayats. There are two Municipalities *viz.* Ariyalur & Jayankondam and two Town Panchayats viz. Udayarpalayam & Varadharajanpettai (Fig 2).

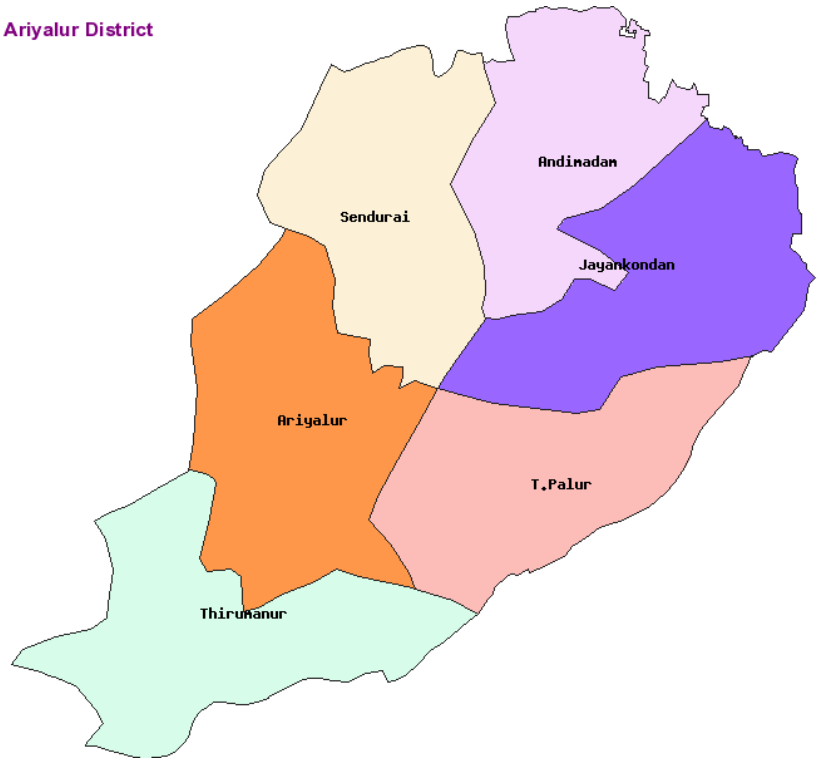

Fig. 2 Block location map of Ariyalur district

Table 2.1 Block-wise area of Ariyalur district

Sl. No.	Name of Block	Area (Sq. km)
1.	Ariyalur	326.85
2.	Thirumanur	349.65
3.	Jayankondam	343.81
4.	T. Palur	309.45
5.	Andimadam	289.43
6.	Sendurai	314.82
	Total	**1934.01**

Source: *Hand book, Department of Agriculture, Ariyalur District*

The district has a total geographical area of 1934.01 Sq.km (Table 2.1). The district has Vellar River in the north and Kollidam River in the south. The district is rich in mineral deposits. Eight major Cement factories are located within the district due to the abundant deposits of limestone. Fire Clay is used for the manufacture of floor tiles, stoneware pipes, fire bricks and in the chemical industry. The availability of Lignite, Oil and Gas reserves at Jayankondam and nearby places is a bountiful gift of

Mother Nature. Geologists consider the Fossils that are excavated as National assets.

2.2 Area, Location and Geographical features

The district is bordered by the district of Cuddalore in the north, Perambalur and Tiruchirappalli in the west, Thanjavur and Tiruvarur in the south and Nagapattinam in the east. Ariyalur district comprises three taluks (Ariyalur, Udayarpalayam and Sendurai) three Assembly segments (Ariyalur, Andimadam and Jayankondam) six blocks (1.Ariyalur, 2.Andimadam, 3.Sendurai, 4.Thirumanur, 5. T. Palur and 6. Jayankondam), 195 Revenue villages, 2 municipalities and 201 Village Panchayats. The district has an area of 1934.01 Sq. km. It is an inland district without coastal line. The district has Vellar River, Kollidam River and Maruthiaru River. It is located approximately between 10°54'N and 11°30'N of the north latitude and between 78°40'E and 79°30'E of east longitude (Fig 1).

2.3 Administrative Structure of Ariyalur district

For administrative convenience, Ariyalur district has been divided into six blocks. The blocks are Andimadam, Jayankondam, T. Palur, Ariyalur, Sendurai and Thirumanur. The following Table shows the block wise distribution of panchayat villages.

Table 2.2 Number of Blocks in Ariyalur district

Blocks	Panchayat Villages
Number of Blocks	6
Number of Panchayat Villages	201
Andimadam	30
Jayankondam	35
T. Palur	33
Ariyalur	37
Sendurai	30
Thirumanur	36

The above Table 2.2 reveals that there are 6 blocks in the district. In the 6 blocks there are 201 Panchayat villages. Ariyalur block has the maximum number of panchayat villages (37),Andimadam and Sendurai have minimum number of panchayat villages (30 each). There are 3 taluks in the Ariyalur district. In the 3 taluks there are 195 revenue villages.

2.4 Demographic profile

The demographic details of the Ariyalur district are presented in Table 2.3. According to 2011 census, population of the Ariyalur district was 695524 and the Sex ratio was 1006. Of the Population (0-6) constitutes 14.69 per cent with sex ratio of 949. The literacy rate of the district was 64.08 per cent of the total population. Scheduled Castes constitutes 24.94 per cent of the total population with sex ratio of 1008. Scheduled Tribes constitutes 1.41 per cent of the total population with sex ratio of 1017. Workers constitute 49.73 per cent of the total population with sex ratio of 719. Main Workers constitute 36.18 per cent of the total population with sex ratio of 501. Main Workers in household industries constitute 6.4 per cent of the total population with sex ratio of 679. Main Other Workers constitute 19.81 per cent of the total population with sex ratio of 475. Main Agricultural labourers constitute 35.18 per cent of the total population with sex ratio of 549. Marginal Agricultural labourers constitute 74.78 per cent of the total population with sex ratio of 231. Marginal Workers constitute 13.56 per cent of the total population with sex ratio of 800. Marginal Cultivators constitute 15.06 per cent of the total population with sex ratio of 410. Marginal Workers in Household industries constitute 3.88 per cent of the total population with sex ratio of 353. Marginal Other Worker constitutes 6.28 per cent of the total population with sex ratio of 666. Non Workers constitute 50.27 per cent of the total population with sex ratio of 402. Households in the district were 165569.

Table 2.3 Demographic details of Ariyalur district (Census 2011)

Sl. No.	Parameter	Total	Male	Female	Percentage	Sex Ratio
1	Population	695524	346763	348761	100	1006
2	Population (0-6)	89099	45726	43373	14.69	949
3	Scheduled Castes	151220	75326	75894	24.94	1008
4	Scheduled Tribes	8529	4228	4301	1.41	1017
5	Literates	388605	232385	156220	64.08	672
6	Illiterates	306919	114378	192541	35.92	1683
7	Workers	345891	201196	144695	49.73	719
8	Main Workers	251606	167679	83927	36.18	501
9	Main Cultivators	97135	69827	27308	38.61	391
10	Main Agricultural Labourers	88517	48591	39926	35.18	549

Table 2.3 contd…

Sl. No.	Parameter	Total	Male	Female	Percentage	Sex Ratio
11	Main Workers in Household industries	16104	9590	6514	6.4	679
12	Main Other Workers	49850	39671	10179	19.81	475
13	Marginal Workers	94285	33517	60768	13.56	800
14	Marginal Cultivators	14201	5893	8308	15.06	410
15	Marginal Agricultural Labourers	70506	23263	47243	74.78	231
16	Marginal Workers in Household Industries	3654	805	2849	3.88	353
17	Marginal Other Workers	5924	3556	2368	6.28	666
18	Non Workers	349633	145567	204066	50.27	402
19	Households	16556				

Source: Census 2011, Directorate of Census Operations, Tamil Nadu

2.4.1 Block wise population, scheduled castes and scheduled tribes

Block wise population on scheduled castes and scheduled tribes in Ariyalur district are presented in Table 2.4. Total population was highest in Jayankondam block with 188661 of which male was 94175 and female was 94486 followed by T. Palur with 169806 of which male was 84763 and female was 85043. Total population in Ariyalur block with 113209 of which male was 56376 and female was 56833. Total population in Andimadam block is 49212 of which male was 24496and female was 24716.

Total scheduled castes population was highest in Jayankondam block (40288) of which male was 20196 and female was 20091 followed by T. Palur with 36261 of which male was 18178 and female was 18084. Total scheduled castes population in Ariyalur block was 22696 of which male was 11183 and female was 11513. Total scheduled castes population in Thirumanur block was 24280 of which male was 11964 and female was 12316. Total scheduled castes population in Sendurai block is 14429 of which male was 7193 and female was 7237. Total scheduled castes

population in Andimadam block was 13266 of which male was 6612 and female was 6653.Total scheduled tribes population was highest in Jayankondam block (3497) of which male was 1742 and female was 1755 followed by T. Palur with 3147 of which male was 1568 and female was 1579. Total scheduled tribes population in Ariyalur block was 454 of which male was 219 and female was 235. Total scheduled tribes population in Thirumanur block was 486 of which male was 234 and female was 252. Total scheduled tribes population in Sendurai block was 492 of which male was 242 and female was 250. Total scheduled tribes population in Andimadam block was 453 of which male was 223 and female was 230.

Table 2.4 Block wise Population, Scheduled Castes and Scheduled Tribes in Ariyalur district (Census 2011)

Sl. No.	Blocks	Population			Scheduled Castes			Scheduled Tribes		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Ariyalur	56376	56833	113209	11183	11513	22696	219	235	454
2	Thirumanur	60309	60798	121107	11964	12316	24280	234	252	486
3	Sendurai	26644	26885	53529	7193	7237	14429	242	250	492
4	Andimadam	24496	24716	49212	6612	6653	13266	223	230	453
5	T. Palur	84763	85043	169806	18178	18084	36261	1568	1579	3147
6	Jayankondam	94175	94486	188661	20196	20091	40288	1742	1755	3497
	Total	346763	348761	695524	75326	75894	151220	4228	4301	8529

Source: Census 2011, Directorate of Census Operations, Tamil Nadu

2.4.2 Block wise Workers, Cultivators and Agricultural Labourers

Block wise workers, cultivators and agricultural labourersin Ariyalur district are presented in Table 2.5. Total workers were highest in Jayankondam block with 93118, of which male was 54749 and female were 38369 followed by T. Palur with 83812, and of which male was 49278 and female were 34534. Total workers in Ariyalur block was 56009 of which male was 32871 and female was 23138. Total population in Andimadam block was 25404; of which male was 13954 and female was 11449.

Total cultivators were highest in Jayankondam block (28443) of which male was 19005 and female was 9438 followed by T. Palur with 25601 of which male was 17106 and female was 8495. Total cultivators in Ariyalur block is 17905, of which male was 13029 and female was 4876. Total cultivators in Thirumanur block was 19154, of which male was 13937 and female was 5217. Total cultivators in Sendurai block was 10542, of which male was 6587 and female was 3954. Total cultivators in Andimadam block was 9691, of which male was 6056 and female was 3636.

Total agricultural labourers was highest in Jayankondam block (43052) of which male was 20842 and female was 22210 followed by T. Palur with 38750 of which male was 18760 and female was 19990. Total agricultural labourers in Ariyalur block was 26205 of which male was 10886 and female was 15318. Total agricultural labourers in Thirumanur block was 28032, of which male was 11646 and female was 16387. Total agricultural labourers in Sendurai block was 11975, of which male was 5064 and female was 6911. Total agricultural labourers in Andimadam block was 11009, of which male was 4656 and female was 6353.

Table 2.5 Block wise Workers, Cultivators and Agricultural Labourers in Ariyalur district (Census 2011)

Sl. No.	Blocks	Workers			Cultivators			Agricultural Labourers		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Ariyalur	32871	23138	56009	13029	4876	17905	10886	15318	26205
2	Thirumanur	35165	24751	59916	13937	5217	19154	11646	16387	28032
3	Sendurai	15179	12454	27632	6587	3954	10542	5064	6911	11975
4	Andimadam	13954	11449	25404	6056	3636	9691	4656	6353	11009
5	T. Palur	49278	34534	83812	17106	8495	25601	18760	19990	38750
6	Jayankondam	54749	38369	93118	19005	9438	28443	20842	22210	43052
	Total	**201196**	**144695**	345891	**75720**	**35616**	111336	**71854**	**87169**	159023

Source: Census 2011, Directorate of Census Operations, Tamil Nadu

2.5 Topography

2.5.1 Soil types

Clay loam soil, Sandy loam and Sandy clay loam soils are found in the district. Clay Loam soils are found in Thirumanur, and T. Palur blocks while sandy loam soils are found in Jayankondam and Andimadam blocks. Also sandy clay loam soils are found in Ariyalur and Sendurai blocks (Fig 3).

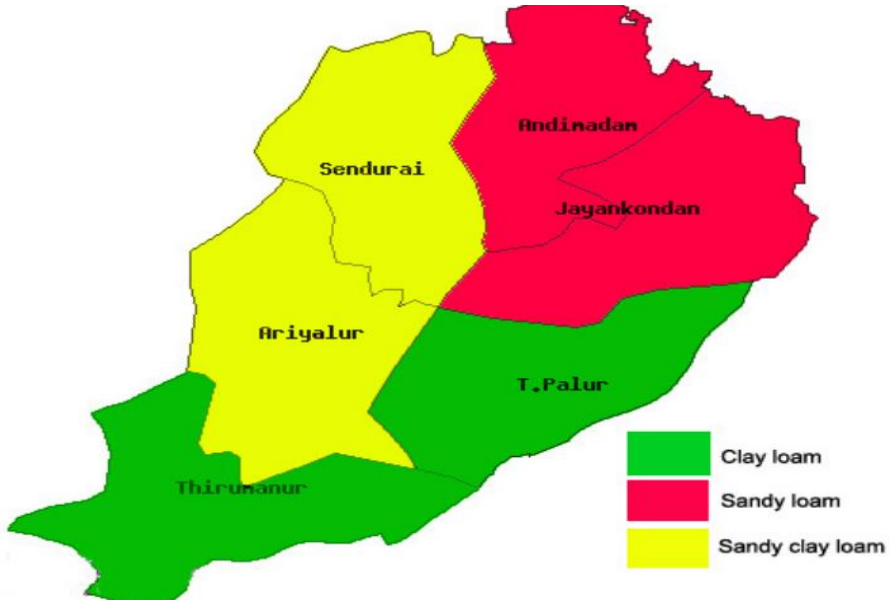

Fig 3 Soils profile map of Ariyalur district

Block wise major soil types in Ariyalur district are presented in Table 2.6. Total area of Ariyalur block is 32681 ha of which red soil is in 3250 ha, black soils (27950 ha) and alluvial soil (1481 ha). Total area of Sendurai block is 31482 ha of which red soil is 15451 ha and black soil is 16031 ha. Total area of Thirumanur block is 34966 ha of which red soil is 1500 ha, black soil is 28202 ha and alluvial soil is 5264ha.Total area of Jayankondam block is 34381 ha of which red soil is 15575 ha and black soil is 18806 ha. Total area of Andimadam block is 28613 ha of which red soil is 11850 ha, black soil is 14593 ha and alluvial soils is 2170 ha. Total area of T. Palur block is 31215 ha of which red soil is 9850 ha, black soil is 16865 ha and alluvial soil is 4500 ha.

Table 2.6 Block wise Major Soil Type in Ariyalur district (ha) during 2014-15

Name of the Block	Red Soils	Black Soils	Alluvial Soils	Total
Ariyalur	3250	27950	1481	32681
Sendurai	15451	16031	--	31482
Thirumanur	1500	28202	5264	34966
Jayankondam	15575	18806	--	34381
Andimadam	11850	14593	2170	28613
T. Palur	9850	16865	4500	31215
Total Crops	57476	122447	13415	193338

Source: G Return 2014-15

Table 2.7 Block wise Irrigated Area in the Major Soil Type (ha) in Ariyalur district during 2014-15

Sl. No.	Block	Red Soil		Black Soil		Alluvial Soil		Total	
		Irrigated Area (ha)	Un irrigated Area (ha)	Irrigated Area (ha)	Un irrigated Area (ha)	Irrigated Area (ha)	Un irrigated Area (ha)	Irrigated Area (ha)	Un irrigated Area (ha)
1	Ariyalur	945	1679	1780	8450	978	58	3703	10187
2	Sendurai	1234	13150	2410	5423	0	0	3644	18573
3	Thirumanur	418	678	11581	5923	4756	121	16755	6722
4	Jayankondam	1145	7853	1905	9978	0	0	3050	17831
5	Andimadam	1599	11289	285	4128	2100	94	3984	15511
6	T. Palur	3214	4041	1145	3254	3405	101	7764	7396
	Total	**8555**	**38690**	**19106**	**37156**	**11239**	**374**	**38900**	**76220**

Source: G Return 2014-15

Table 2.8 Irrigated Area in the major soil type (ha) in Ariyalur district

Type	Irrigated Area (ha)	Un Irrigated Area (ha)	Total
Red Soils	8555	38690	47245
Black Soils	19106	37156	56262
Alluvial Soils	11239	374	11613
Total	**38900**	**76220**	**115120**

Source: G Return 2014-15

2.6. Climate condition and rainfall

Ariyalur district has a typically semiarid climate with hot summers and moderately cool winters. The summer season, which is very oppressive, is from March to May. The southwest monsoon, which follows, lasts till September, October to December constitutes northeast monsoon season. January to February is the comparatively cooler period. The district receives an annual rainfall of 1071.8 mm (Table 2.9 and Fig 4).

Table 2.9 Month wise / season wise rainfall distribution in Ariyalur District (mm)

Season / Month	2014-2015	
	Actual	Normal
South West Monsoon		
June	9	51.5
July	80.5	72.7
August	93.3	129.2
September	25.8	138.6
Total	**208.6 (**30.49**)**	**392 (**36.57**)**
North East Monsoon		
October	182.6	193.4
November	90.4	205.2
December	88	146.9
Total	**361 (**52.77**)**	**545.5 (**50.90**)**
Winter Season		
January	4.5	21.2
February	0	11.3
Total	**4.5 (**0.66**)**	**32.5 (**3.03**)**

Season / Month	2014-2015	
	Actual	Normal
Hot Weather		
March	0.5	13.1
April	42.7	21.9
May	66.8	66.8
Total	**110** (16.08)	**101.8** (9.50)
Annual rainfall	**684.1** (100.00)	**1071.8** (100.00)

Source: *Season and Crop Report (2014-15), Department of Economics and Statistics*

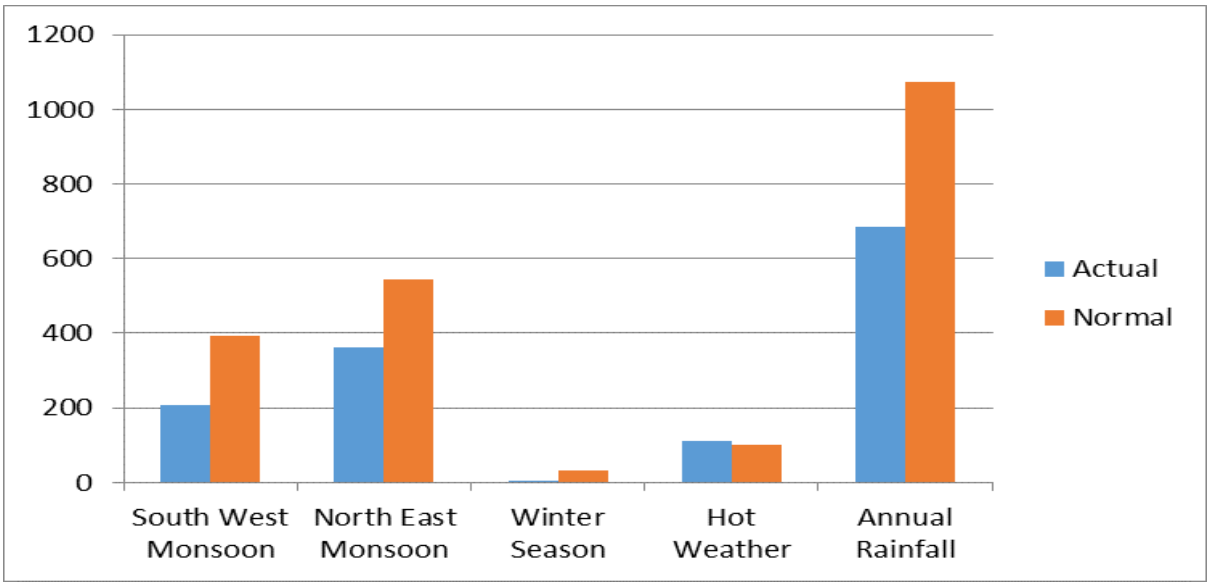

Fig. 4 Average rainfall of Ariyalur District in mm (2014-15)

Weather Parameters in Ariyalur District

The weather is hot with maximum temperatures soaring up to 38.9^0 Celsius. The minimum temperatures were between 19.5^0 C and 18.6^0C (Table 2.10).

Table 2.10 Temperature in Ariyalur district (in Celsius) 2014-15

Particulars	Normal	Actual
Maximum	37.6	38.9
Minimum	19.5	18.6

Source: Hand book, Department of Agriculture, Ariyalur District

2.7 Land

The total geographical area of the Ariyalur district is 1,93,398 hectares. In 2014-'15, (Table 2.11) the net area sown was 99,112 hectares and accounted for 51.25 per cent of the total area of the district. Area sown more than once was 12765 hectares. Total cropped area was 1,11,877 hectares. Forests accounted for 739 hectares and formed 0.38 per cent of the total area. Barren and uncultivable area was 8523 hectares in the district. Nearly 17 per cent of the total area was put to non-agricultural use (32,382 hectares). However, 3.97 per cent of the area accounted for current fallow lands (7687 hectares).

Table 2.11 Land Use Pattern (2014-'15)

Sl. No	Particulars	2014-15	per cent
1	Geographical Area	193398	100.00
2	Forest	739	0.38
3	Barren &Uncultivable Area	8523	4.41
4	Land Put to Non-agricultural Uses	32382	16.74
5	Permanent Pastures & Other grazing lands	1291	0.67
6	Misc.tree crops & groves not incl. in the net area sown	23572	12.19
7	Current Fallow	7687	3.97
8	Other Fallow	16879	8.73
9	Net area sown	99112	51.25
10	Area sown more than once	12765	6.60
11	Gross area sown	111877	57.85

Source: *Season and Crop Report (2014-15), Department of Economics and Statistics.*

2.7.1 Land Holding Pattern

There are 3, 08,714 farmers owning 193398 hectare of lands for crop cultivation. The average size of holdings in Ariyalur district was 0.63 hectare. Land holding patterns of Ariyalur district are presented in Table 2.12.

Table 2.12 Land holding pattern of Ariyalur district

Sl. No.	Particulars	Quantity
1.	Holdings (Nos.)	308714
2.	Area (in ha)	193398
3.	Average Size of Holdings (in ha)	0.63

2.8 Sources of Irrigation

Source of Irrigation, gross area irrigated, net area irrigated and average area irrigated in Ariyalur district are presented in Table 2.13. Tube/bore Wells formed the major source of irrigation (27061 ha) followed by canals (6822 ha), open wells (4436 ha) and tanks (2387 ha). Pullambadi Canal and Nanthiyar Canal are the major sources of irrigation in Thirumanur Block while Ponnaru is the major source of irrigation for rice in T. Palur Block.

Table 2.13 Source of Irrigation in Ariyalur district (in ha)

Sl. No.	Particulars		2012-13	2013-14	2014-15	Average
1	Canals	Gross	3165	8555	8746	6822.00
		Net	3095	7558	7828	6160.33
2	Tanks	Gross	1995	3058	2108	2387.00
		Net	1934	2963	2003	2300.00
3	Tube wells / Bore wells	Gross	21442	30364	29377	27061.00
		Net	18786	22232	21113	20710.33
4	Open wells	Gross	3557	4846	4907	4436.67
		Net	3280	4667	4154	4033.67
5	Supplementary wells	Gross	0	733	300	344.33
		Net	0	733	300	344.33

Source: *Season and Crop Report 2014-15, Department of Economics and Statistics, Tamil Nadu*

2.8.1 Sources of supplemental Irrigation in Ariyalur district

Block wise number of wells and lakes in respect of Ariyalur district are presented in Table 2.14. Total numbers of open wells in Ariyalur district was 4629 of which Ariyalur block accounts 867, Andimadam block with 1189, Thirumanur block with 721, Senthurai block with 126, Jayankondam block with 972 and T. Palur block with 754. Total numbers of tube wells in Ariyalur district was 6347 of which Thirumanur block accounts 2485, followed by Senthurai block with 201, T. Palur block with 1211, Ariyalur block with 806, Jayankondam block with 892 and Andimadam block with 752.

There are five canals that flow through Thirumanur, T. Palur, Jayankondam and Ariyalur block. Lakes irrigating more than 50 hectares are 33 and lakes irrigating less than 50 hectares are 511.

Table 2.14 Block wise number of wells and lakes Ariyalur district during 2014-15

Sl. No.	Block	WELLS (Nos)				LAKES. (Nos)		Canals (Nos)
		Tube Wells	Filter point	Bore Wells	Open Wells	Irrigation area more than 50 Hec.	Irrigation area less than 50 Hec.	
1	Ariyalur	806	201	0	867	8	169	1
2	Senthurai	201	48	0	126	9	42	0
3	Thirumanur	2485	1442	0	721	5	54	2
4	Jeyamkondam	892	0	0	972	5	114	1
5	Andimadam.	752	0	0	1189	1	22	0
6	T. Palur	1211	0	0	754	5	110	1
	Sub-Total	**6347**	**1691**	**0**	**4629**	**33**	**511**	**5**

Source: Dept. of Agriculture, Airyalur 2014-15

NagamangalamAndiEri, KallankurichiEri, AriyalurSitheri, VilankudiPeriyaEri, VellurPeriyaEri, ThelurPeriyaEri, RayampuramEri, AgaramPeriyaEri, UppuodaiPeriyaEri are major sources of important lakes / tanks for irrigation/household purposes in Ariyalur Block. ArasanEri & odai, VettakudiEri, ThoothurEri, ManodaiEri, SukkiranEri, VannanEri are major sources of important lakes / tanks for irrigation/household purposes in Thirumanur Block. PonEri, ValavanEri, PandianEri, VeeramangudiOdaiEri are major sources for important lakes / tanks for irrigation/household purposes in Jayankondam Block.

SripuranthanPeriyaEri, KaraikurichiKovathattaiEri, SundakudiEri are major sources of important lakes / tanks for irrigation/household purposes in T. Palur Block. KallankuliEri, KattathurPeriyaEri, Anikuthichan, SathanapattuEri, VilanthaiPeriyaEri, PeriyaKrishnapuramPeriyaEri are major sources of important lakes / tanks for irrigation/household purposes in Andimadam Block. NakkampadiPeriyaEri, KulumurPeriyaEri, SenduraiPeriyaEri, NallanayagapuramEri, EachankattuPeriyaEri, ThalavaiPeriyaEri are major sources of important lakes / tanks for irrigation/household purposes in Sendurai Block.

2.8.2. Block wise diesel pump sets available in Ariyalur district

Block wise diesel pump sets available in Ariyalur district are presented in Table 2.15. Total numbers of diesel pump sets in Ariyalur district are 7635 of which Thirumanur

constitutes 27 per cent, followed by Andimadam with 23 per cent, T. Palur with 16 per cent and Ariyalur with 12 per cent while Sendurai and Jayankondam each accounts 11 per cent of total pump sets available at Ariyalur district.

Table 2.15 Block wise Diesel pump sets available during 2014-15

Sl. No.	Block	Diesel Pump sets (Nos)	% to total
1	Ariyalur	914	12
2	Sendurai	830	11
3	Thirumanur	2026	27
4	Jayankondam	830	11
5	Andimadam	1776	23
6	T. Palur	1259	16
	Grand Total	**7635**	100

Source: G Return 2014-15

2.9. Cropping pattern

2.9.1 Block wise area under horticulture crops

Block wise area under horticulture crops in Ariyalur district are presented in Table 2.16. Total area under horticultural crops in Ariyalur district was 30,734 ha of which fruits accounts 604 ha, vegetables 1773 ha, spices & condiments 415 ha, plantation crops 27,898 ha, medicinal & aromatic plants constitute 18 ha and commercial flowers constitute 28 ha.

Total area under horticultural crops in Ariyalur block was 520 ha of which fruits accounts 34 ha, vegetables with 104 ha, spices & condiments with 140 ha, plantation crops with 242 ha and commercial flowers one hectare. Total area under horticultural crops in Thirumanur block was 295 ha of which fruits accounts 39 ha, vegetables with 67 ha, spices & condiments with 63 ha, plantation crops with 110 ha and commercial flowers 16 hectare. Total area under horticultural crops in Sendurai block was 10320 ha of which fruits accounts 98 ha, vegetables 21 ha, spices & condiments 35 ha, plantation crops 10163 ha, medicinal & aromatic plants constitute two hectare.

Total area under horticultural crops in Jayankondam block was 4643 ha of which fruits accounts 206 ha, vegetables 279 ha, spices & condiments 77 ha, plantation crops 4066 ha and medicinal & aromatic plants constitutes 16 hectare. Total area under

horticultural crops in Andimadam block was 11,987 ha of which fruits accounts 124 ha, vegetables 29 ha, spices & condiments 66 ha, plantation crops11,762 ha and commercial flowers seven hectare. Total area under horticultural crops in T. Palur block was 2969 ha of which fruits accounts for 104 ha, vegetables for 1273 ha, spices & condiments with 34ha, plantation with crops 1555 ha and commercial flowers constitute three hectares.

Table 2.16 Block wise area under horticulture crops in Ariyalur district during 2014-15 (Area in ha)

S. No	Block	Fruits	Vegetables	Spices & Condiments	Plantation Crops	Medicinal & Aromatic Plants	Commercial Flowers	Total
1	Ariyalur	34	104	140	242	-	1	520
2	Thirumanur	39	67	63	110	-	16	295
3	Sendurai	98	21	35	10163	2	1	10320
4	Jayankondam	206	279	77	4066	16	--	4643
5	Andimadam	124	29	66	11762	--	7	11987
6	T. Palur	104	1273	34	1555	--	3	2969
	Total	604	1773	415	27898	18	28	30734

Source: Deputy Director of Horticulture, Ariyalur

2.9.2. Principal Crops in Ariyalur district

There are 31 major crops cultivated in Ariyalur district with area of 178221.67 hectares. The major crops are cashew, paddy, groundnut, maize, sugarcane, sorghum eucalyptus, cotton, Casuarina, black gram, Chillies, drumstick, Bajra, mango and gingelly. Net sown area of the district was99112 hectares, and the gross cropped area was111877 hectares with the cropping intensity of 1.06. The area, production and productivity of major crops in Ariyalur district is listed in Table 2.17.

Table 2.17 Area, production and productivity under major crops in Ariyalur district (Triennium average ending 2014-15)

Sl. No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
1	Paddy	21689.33	94763.00	4165.00
2	Maize	15778.67	90845.67	5781.00
3	Sorghum	891.67	1437.00	1676.00
4	Bajra	733.33	2156.67	2835.00
5	Ragi	29.00	99.67	2808.00
6	Red Gram	233.33	255.00	1003.33
7	Black Gram	3035.00	2516.33	775.33
8	Green Gram	9.67	5.67	515.00
9	Horse Gram	2.67	1.67	594.67
10	Groundnut	9360.67	34751.67	2854.33
11	Sunflower	368.67	516.33	1192.00
12	Gingelly	1085.67	577.00	381.00
13	Castor	30.67	10.67	218.67
14	Cotton	10376.33	30308.67	379.33
15	Coconut	334.33	21.67	5035.33
16	Sugarcane	8390.67	868007.33	72.67
17	Onion	61.67	560.67	9345.33
18	Brinjal	175.33	1578.00	9034.00
19	Bhendi	82.67	598.67	7361.33
20	Tomato	6.67	88.67	13678.67
21	Banana	147.00	5656.67	39706.00
22	Mango	541.33	3077.67	6823.00
23	Jack Fruit	112.33	245.67	2186.33
24	Pine Apple	0.33	8.33	8430.00
25	Guava	9.33	54.33	6151.67
26	Chillies	215.67	96.00	437.33
27	Coriander	230.00	11.67	439.67
28	Turmeric	59.00	224.33	3829.33

Sl. No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
29	Tamarind	313.00	773.33	2472.00
30	Tapioca	221.67	7132.33	32180.00
31	Sweet Potato	0.33	6.00	5860.33
	Total	**74526.00**		

Source: *Season and Crop Report (2014-15), Department of Economics and Statistics.*

2.10. Animal husbandry

The livestock population in Ariyalur district is presented in Table 2.18. Of the total livestock in Ariyalur district, goat population was highest (2,24,958) followed by cattle (1,51,238) and sheep (41285). Total poultry population was 1,91,527.

Table 2.18 Livestock population in the district (2011-'12 census)

Sl. No.	Particulars	Population
1	Cattle	151238
2	Buffaloes	5898
3	Sheep	41285
4	Goats	224958
5	Horses and ponies	16
6	Donkeys	14
7	Pigs	6801
	Total Livestock	**430210**
8	Dogs	15424
9	Rabbits	232
	Poultry	
10	Bank yard Poultry	158615
11	Farm Poultry	32912
	Total Poultry	**191527**

Source: 19th Livestock Census, 2012.

2.10.1 Block wise Livestock population in the district (2011-12 census)

The block wise livestock population is furnished in the Table 2.19. It is found that, Ariyalur block has the maximum number of livestock followed by Sendurai block. Among the livestock cattle population were highest in all the blocks and least was with pigs and buffalo *etc*. Among poultry population Andimadam block was ranked first followed by Sendurai block.

Table 2.19 Block wise Livestock population in the district (2011-'12 census)

Sl. No.	Live stock	B1	B2	B3	B4	B5	B6	District
1	Cattle	20313	31980	23816	30150	19044	22584	147887
2	Buffalo	448	448	1601	953	1564	1536	6550
3	Sheep	1938	11838	6391	9212	7874	5570	42823
4	Goat	25788	49062	37770	38025	36900	36204	223749
5	Pigs	1201	869	1104	2436	677	672	6959
6	Poultry	42187	27135	28506	39174	15471	18299	170772

Note: B1-Andimadam, B2-Ariyalur, B3-Jayakondam, B4-Sendurai, B5-T. Palur, B6-Thirumanur
Source: TANUVAS, Chennai

2.10.2 Infrastructure

Almost all the blocks of this district possess infrastructure facilities for the development of dairy. The district possesses only Veterinary clinics. Among the blocks Thirumanur has higher numbers (9) of veterinary clinics followed by Ariyalur and Jayankondam blocks.

Table 2.20 Infrastructure in Ariyalur district

Sl. No.	Infrastructure	B1	B2	B3	B4	B5	B6	District
1	Dairy co-operative Society	-	-	-	-	-	-	0
2	Veterinary clinics	4	7	7	6	5	9	38
	a. Veterinary Hospital	-	-	-	-	-	-	0

Note: B1-Andimadam, B2-Ariyalur, B3-Jayakondam, B4-Sendurai, B5-T. Palur, B6-Thirumanur
Source: TANUVAS, Chennai.

2.11 Banking and Insurance

The details of banks are sown in Table 2.21.

Table 2.21 Distribution of Scheduled Commercial Banks/ Offices, Aggregate Deposits and Gross Bank Credit in Ariyalur district (2014-15)

Number of Banks / Offices	64
Credit (₹. Crores)	990.8
Debit (₹. Crores)	2062.1

There are 64 commercial banks available in Ariyalur district and the total credit of banks was 990.8 crores. The total debit was 2062.1 crores. The details of allocation and achievement under annual credit plan of Ariyalur district is given in Table 2.22.

Table 2.22 Allocation and Achievement under Annual Credit Plan of Ariyalur District (2014-15)

	Farm Sector	Non – Farm Sector (NFS)	Other Priority Sector (OPS)	Total
Allocation	252.18	9.68	19.01	280.87
Achievement	351.11	08.90	23.14	383.15
Percentage of Achievement	139	92	122	136

CHAPTER III

DEVELOPMENT OF AGRICULTURE AND ALLIED SECTORS

Before suggesting an action plan for development of agriculture and allied sectors, a brief analysis at district level was done on the following components:

i. Assessing the trends in area, production and productivity of major crops and projection till the 12th Plan period (2015-16)
ii. Yield gap analysis for the major crops

3.1 Trends in area, production and productivity of major crops

Data on area, production and productivity of crops in Ariyalur district were collected over a period of 18 years from 1997-98 to 2014-15, while same data were collected for Ariyalur district over the period of three years from 2012-13 to 2014-15. Ariyalur district data are added to work out trend and Compound Growth Rate (CGR). The compound growth rate was calculated for area, production and productivity of all major crops.

3.2 Compound Growth Rate and projection of area under major crops in Ariyalur District

Compound Growth Rate of area under major crops grown in Ariyalur district are presented in Table 3.1. Compound growth rate of area were positive for Cashew, Maize, Sugarcane, Eucalyptus, Casuarinas, Black gram, Drumstick and Mango. Compound Growth Rate of area were negative for Paddy, Groundnut, Sorghum, Cotton, Gingelly, Chillies and Bajra.

Table 3.1 Compound Growth Rate of area under major crops in Ariyalur district

S. No.	Crop	Average Area (1997-'15)		Area in 2015 (ha)	Predicted Area in 2023 (ha)	Absolute Change b/n 2011&2023
		Ha	CGR			
1	Cashew	25212	95.57	30283	66552	36092
2	Paddy	44253	-2.30	23108	27530	-11926
3	Groundnut	29636	-7.70	8967	5618	-7857
4	Maize	28888	56.00	14825	120699	78595
5	Sugarcane	12794	1.12	7493	15719	2903
6	Sorghum	19306	-10.45	775	1877	-4838
7	Eucalyptus	2096	59.45	679	5617	-501
8	Cotton	17648	-2.06	13377	12782	-20165
9	Casuarinas	1086	43.31	204	1141	-2624
10	Gingelly	4757	-12.91	1135	250	-1249
11	Chillies	3250	-8.18	224	547	-942
12	Black Gram	1131	5.86	3966	3316	1688
13	Bajra	2674	-11.78	721	169	-811
14	Drumstick	200	58.81	1427	1096	156
15	Mango	556	52.11	552	1390	722

Source: *Season and Crop Report, Department of Economics and Statistics, Tamil Nadu & G Return 2014-'15*

3.3 Compound Growth Rate and projection of production of major crops in Ariyalur district

Compound Growth Rate of production of major crops grown in Ariyalur district are presented in Table 3.2. It could be observed that, Compound Growth Rate of production were positive for Cashew,Paddy, Maize, Sugarcane, Cotton, Eucalyptus, Casuarinas, Black gram, Drumstick and Mango. Compound Growth Rate of production were negative for Sorghum, Gingelly and Bajra.

Table 3.2 Compound Growth Rate of Production of major crops in Ariyalur district

Sl. No.	Crop	Average Production (1997-'15)		Production in 2015 (tn)	Predicted Production in 2023 (tn)	Absolute Change b/n 2011&2023
		tn	CGR			
1	Cashew	4665	95.47	11889	13002	8448
2	Paddy	126340	3.73	116239	87088	-65495
3	Groundnut	45542	2.29	38313	17626	-21603
4	Maize	44785	63.29	406227	211081	113381
5	Sugarcane	1257190	7.16	784134	1683657	377247
6	Sorghum	19847	-6.63	2003	1417	-5393
7	Eucalyptus	129080	95.76	238850	249925	-208925
8	Cotton	28465	4.26	44668	34093	-17413
9	Casuarinas	102507	82.16	37650	77033	-299467
10	Gingelly	1689	-14.01	717	370158	369340
11	Chillies	1571	1.32	176	374	-18
12	Black Gram	527	9.85	3719	524	-261
13	Bajra	2395	-1.23	2353	276	-993
14	Drumstick	6200	88.6	32900	33602	702
15	Mango	2742	72.06	3555	8235	3146

Source: *Season and Crop Report, Department of Economics and Statistics, Tamil Nadu & G Return 2014-'15*

3.4 Compound Growth Rate and projection of productivity of major crops in Ariyalur district

Compound Growth Rate of productivity of major crops grown in Ariyalur district are presented in Table 3.3. It could be observed that Compound Growth Rate of production were positive for Paddy, Maize, Sugarcane, Cotton, Eucalyptus, Casuarinas, Black gram, Drumstick, Groundnut, Sorghum, Chillies, Bajraand Mango. Compound Growth Rate of productivity were negative for Cashew and Gingelly.

Table 3.3 Compound Growth Rate of Productivity of major crops in Ariyalur district

Sl. No.	Crop	Average Productivity (1997-2015)		Productivity in 2015 (t/ha)	Predicted Productivity in 2023 (t/ha)	Absolute Change b/n 2011 & 2023
		t/ha	CGR			
1	Cashew	0.28	-0.10	0.39	1.31	0.66
2	Paddy	3.73	6.03	5.30	10.61	2.88
3	Groundnut	2.74	9.99	4.27	13.17	8.70
4	Maize	1.67	7.29	9.62	4.60	0.97
5	Sugarcane	123.32	6.04	105	370.13	164.86
6	Sorghum	1.21	3.82	2.58	2.31	0.26
7	Eucalyptus	70.00	36.31	150.00	227.77	77.77
8	Cotton	1.91	6.32	0.56	4.47	1.28
9	Casuarinas	93.33	38.85	200.00	303.69	103.69
10	Gingelly	0.51	-1.10	0.63	0.55	-0.56
11	Chillies	0.67	9.50	0.78	3.45	2.81
12	Black Gram	1.21	3.99	0.93	1.38	0.46
13	Bajra	2.35	10.55	3.26	9.59	6.98
14	Drumstick	32.67	29.79	70.00	106.29	36.29
15	Mango	5.96	19.95	6.44	25.49	10.75

Source: *Season and Crop Report, Department of Economics and Statistics, Tamil Nadu &G Return 2014-'15*

3.5 Projected production for predominant agricultural crops 2012-13 to 2022-'23

Required Growth Rate = {(Maximum of potential yield or progressive farm yield - Average yield) / Average yield} x 100

Annual Growth Rate (AGR) = (Required Growth Rate / 11)

Projected yield based on AGR= (Average yield x AGR) + Average yield

Projected yield based on area of variety = (Area under variety x Projected yield based on AGR) / 1000

3.5.1 Projected production for paddy

The area and productivity of crops are determined by fertility of land, monsoon behavior (rainfall), irrigation, application of fertilizers, climatic conditions, marketing facilities, prices, availability of agricultural labourers etc.

Variety wise required Growth Rate and Annual Growth Rate for Paddy in Ariyalur district are presented in Table 3.4. It could be observed from the Table, that the required Growth Rate per annum and Annual Growth Rate of Paddy yield were positive. Annual Growth Rate of Paddy was higher for Co-43 with 6.36 per cent, while it was lower for ADT-45 with 1.82 per cent. Required Growth Rate for Paddy yield was higher for Co-43 with 70.00 per cent, while it was lower for ADT-45 with 20.00 per cent.

Table 3.4 Variety wise required Growth Rate and Annual Growth Rate for Paddy in Ariyalur district

Sl. No.	Ruling Varieties	Required Growth Rate	Annual Growth Rate
1	ADT-36	24.44	2.22
2	ADT-38	20.83	1.89
3	ADT-39	29.17	2.65
4	ADT-43	35.00	3.18
5	ADT-45	20.00	1.82
6	Co-43	70.00	6.36
7	CO-46	21.82	1.98
8	CR1009	41.18	3.74

Varieties wise projected Paddy yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.5. It could be observed from the table, that projected Paddy yield would increase for all major Paddy varieties grown in the district over the period from 2012-13 to 2022-23.

Table 3.5 Varieties wise projected Paddy yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	ADT-36	ADT-38	ADT-39	ADT-43	ADT-45	CO-43	CO-46	CR1009
2011-‘12	4500	6000	6000	6000	6000	5000	5500	5100
2012-‘13	4600	6114	6159	6191	6109	5318	5609	5291
2013-‘14	4702	6229	6322	6388	6220	5657	5720	5489
2014-‘15	4807	6347	6490	6591	6333	6017	5834	5694
2015-‘16	4914	6468	6662	6801	6448	6399	5950	5908
2016-‘17	5023	6590	6839	7017	6566	6807	6068	6129
2017-‘18	5134	6715	7020	7241	6685	7240	6188	6358
2018-‘19	5248	6842	7206	7471	6807	7701	6311	6596
2019-‘20	5365	6972	7397	7709	6930	8191	6436	6843
2020-‘21	5484	7104	7593	7954	7056	8712	6563	7099
2021-‘22	5606	7238	7795	8207	7185	9266	6694	7365
2022-‘23	5731	7375	8001	8468	7315	9856	6826	7641

It could be observed from the Table 3.5, that yield would increase for all varieties of Paddy grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.Varieties wise projected yield based on area under different Paddy varieties grown in Ariyalur district are presented in Table 3.6.

Table 3.6 Varieties wise projected Paddy yield based on area in Ariyalur district (tons per given area)

Year / Variety	ADT-36	ADT-38	ADT-39	ADT-43	ADT-45	CO-43	CO-46	CR1009	Total
Proportion of Varieties (unit)	0.02	0.05	0.29	0.06	0.06	0.29	0.01	0.23	1.00
Area	**500**	**1200**	**7500**	**1500**	**1500**	**7500**	**300**	**6000**	**26000**
2012-‘13	2300	7336	46193	9286	9164	39886	1683	31745	147594
2013-‘14	2351	7475	47418	9582	9330	42425	1716	32934	153231
2014-‘15	2403	7617	48675	9887	9500	45124	1750	34167	159123

Year / Variety	ADT-36	ADT-38	ADT-39	ADT-43	ADT-45	CO-43	CO-46	CR1009	Total
2015-‘16	2457	7761	49966	10201	9673	47996	1785	35446	165284
2016-‘17	2511	7908	51291	10526	9848	51050	1820	36772	171727
2017-‘18	2567	8058	52651	10861	10028	54299	1856	38149	178468
2018-‘19	2624	8211	54047	11206	10210	57754	1893	39577	185522
2019-‘20	2683	8366	55480	11563	10395	61429	1931	41058	192905
2020-‘21	2742	8524	56951	11931	10585	65339	1969	42595	200636
2021-‘22	2803	8686	58461	12310	10777	69497	2008	44190	208732
2022-‘23	2865	8850	60011	12702	10973	73919	2048	45844	217213

3.5.2 Projected production for groundnut

Variety wise required Growth Rate and Annual Growth Rate for Groundnut in Ariyalur district are presented in Table 3.7. It could be observed from the Table, that the required Growth rate per annum and Annual Growth Rate of Groundnut yield were positive. Annual Growth Rate for Groundnut yield was higher for JL 24 with 7.50 per cent, while it was lower for TMV 13 with 2.60 per cent. Required Growth Rate for Groundnut yield is higher for JL 24 with 82.50 per cent, while it was lower for TMV 13 with 28.57 per cent.

Table 3.7 Variety wise required Growth Rate and Annual Growth Rate for Groundnut in Ariyalur district

Sl. No.	Ruling Varieties	Required Growth Rates	Annual Growth Rate
1	VRI 2	40.00	3.64
2	VRI 3	48.33	4.39
3	TMV 7	75.00	6.82
4	TMV 13	28.57	2.60
5	K6	50.00	4.55
6	JL 24	82.50	7.50

Variety wise projected Groundnut yield based on Annual Growth Rate (AGR) for Ariyalur district is presented in Table 3.8. It could be observed from the table that projected Groundnut yield would be increasing for all major Groundnut varieties grown in the district over the period from 2012-13 to 2022-23.

Table 3.8 Variety wise projected Groundnut yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	VRI 2	VRI 3	TMV 7	TMV 13	K6	JL 24
2011-‘12	2000	1800	1600	2100	1800	2000
2012-‘13	2073	1879	1709	2155	1882	2150
2013-‘14	2148	1962	1826	2211	1967	2311
2014-‘15	2226	2048	1950	2268	2057	2485
2015-‘16	2307	2138	2083	2327	2150	2671
2016-‘17	2391	2232	2225	2387	2248	2871
2017-‘18	2478	2330	2377	2449	2350	3087
2018-‘19	2568	2432	2539	2513	2457	3318
2019-‘20	2662	2539	2712	2578	2569	3567
2020-‘21	2758	2651	2897	2645	2685	3834
2021-‘22	2859	2767	3094	2714	2808	4122
2022-‘23	2963	2889	3305	2784	2935	4431

It could be observed from the Table 3.8, that yield would increases for all varieties of Groundnut grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Varieties wise projected yield based on area under different Groundnut varieties grown in Ariyalur district are presented in Table 3.9.

Table 3.9 Variety wise projected Groundnut yield based on area in Ariyalur district (tons per given area)

Year / Variety	VRI 2	VRI 3	TMV 7	TMV 13	K6	JL 24	Total
Proportion of varieties	0.38	0.13	0.04	0.04	0.17	0.25	1
Area	**4500**	**1500**	**500**	**500**	**2000**	**3000**	**12000**
2012-‘13	9327	2819	855	1077	3764	6450	24291
2013-‘14	9666	2942	913	1105	3935	6934	25495
2014-‘15	10018	3072	975	1134	4114	7454	26766
2015-‘16	10382	3207	1042	1163	4301	8013	28107
2016-‘17	10760	3348	1113	1194	4496	8614	29523
2017-‘18	11151	3495	1188	1225	4700	9260	31019
2018-‘19	11557	3648	1269	1256	4914	9954	32599
2019-‘20	11977	3809	1356	1289	5137	10701	34269
2020-‘21	12412	3976	1448	1323	5371	11503	36034
2021-‘22	12864	4151	1547	1357	5615	12366	37900
2022-‘23	13331	4333	1653	1392	5870	13294	39873

3.5.3 Projected production for maize

Variety wise Required Growth Rate and Annual Growth Rate for Maize in Ariyalur district are presented in Table 3.10. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Maize yield were positive. Annual Growth Rate for Maize yield was higher for CP 818 with 7.98 per cent, while it was lower for CP 808 with 5.92 per cent. Required Growth Rate for Maize yield was higher for CP 818 with 87.80 per cent, while it was lower for CP 808 with 65.12 per cent.

Table 3.10 Variety wise required Growth Rate and Annual Growth Rate for Maize in Ariyalur district

Sl. No.	Ruling Varieties	Required Growth Rate	Annual Growth Rate
1	NK 6240	78.57	7.14
2	CP 808	65.12	5.92
3	CP 818	87.80	7.98

Variety wise projected Maize yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.11. It could be observed from the Table, that projected Maize yield would be increasing for all major maize varieties grown in the district over the period from 2012-‘13 to 2022-‘23.

Table 3.11 Variety wise projected Maize yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	NK 6240	CP 808	CP 818
2011-‘12	4200	4300	4100
2012-‘13	4500	4555	4427
2013-‘14	4821	4824	4781
2014-‘15	5166	5110	5162
2015-‘16	5535	5412	5574
2016-‘17	5930	5733	6019
2017-‘18	6354	6072	6500
2018-‘19	6808	6431	7019
2019-‘20	7294	6812	7579
2020-‘21	7815	7215	8184
2021-‘22	8373	7642	8837
2022-‘23	8971	8095	9542

It could be observed, that yield would increase for all varieties of Maize grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Maize varieties grown in Ariyalur district are presented in Table 3.12.

Table 3.12 Variety wise projected Maize yield based on area in Ariyalur district (Tons per given area)

Year / Variety	NK 6240	CP 808	CP 818	Total
Proportion of varieties	0.73	0.23	0.05	1
Area	**8000**	**2500**	**500**	**11000**
2012-‘13	36000	11386	2214	49600
2013-‘14	38571	12060	2390	53022
2014-‘15	41327	12774	2581	56682
2015-‘16	44278	13531	2787	60596
2016-‘17	47441	14331	3010	64782
2017-‘18	50830	15180	3250	69260
2018-‘19	54461	16078	3509	74048
2019-‘20	58351	17030	3789	79170
2020-‘21	62518	18038	4092	84649
2021-‘22	66984	19106	4419	90509
2022-‘23	71769	20237	4771	96777

3.5.4 Projected production for sugarcane

Variety wise Required Growth Rate and Annual Growth Rate for Sugarcane in Ariyalur district are presented in Table 3.13. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Sugarcane yield is positive. Annual Growth Rate for Sugarcane yield was higher for COSI 86071 with 2.34 per cent, while it was lower for COC 90063 with 1.30 per cent. Required Growth Rate for Sugarcane yield was higher for COSI 86071 with 25.71 per cent, while it was lower for COC 90063 with 14.29 per cent.

Table 3.13 Variety wise required Growth Rate and Annual Growth Rate for Sugarcane in Ariyalur district

Sl. No.	Ruling Varieties	Required Growth Rate	Annual Growth Rate
1	COC 86062	21.82	1.98
2	COSI 86071	25.71	2.34
3	COC 90063	14.29	1.30
4	COC 92061	20.91	1.90

Variety wise projected Sugarcane yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.14. It could be observed from the Table, that projected Sugarcane yield would increase for all major Sugarcane varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.14 Variety wise projected Sugarcane yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	COC 86062	COSI 86071	COC 90063	COC 92061
2011-‘12	110000	105000	112000	110000
2012-‘13	112182	107455	113455	112091
2013-‘14	114407	109966	114928	114222
2014-‘15	116676	112537	116421	116393
2015-‘16	118990	115168	117933	118605
2016-‘17	121351	117860	119464	120860
2017-‘18	123757	120615	121016	123157
2018-‘19	126212	123435	122587	125498
2019-‘20	128716	126320	124179	127883
2020-‘21	131269	129273	125792	130314
2021-‘22	133872	132295	127426	132791
2022-‘23	136528	135388	129081	135315

It could be observed from the Table, that yield would increase for all varieties of Sugarcane grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Sugarcane varieties grown in Ariyalur district are presented in Table 3.15.

Table 3.15 Variety wise projected Sugarcane yield based on area in Ariyalur district (tones per given area)

Year / Variety	COC 86062	COSI 86071	COC 90063	COC 92061	Total
Proportion of varieties	0.61	0.06	0.11	0.22	1
Area	**5500**	**500**	**1000**	**2000**	**9000**
2012-‘13	617000	53727	113455	224182	1008364
2013-‘14	629238	54983	114928	228443	1027592
2014-‘15	641719	56269	116421	232785	1047193
2015-‘16	654447	57584	117933	237210	1067174
2016-‘17	667428	58930	119464	241719	1087541
2017-‘18	680666	60308	121016	246314	1108303
2018-‘19	694167	61717	122587	250996	1129467
2019-‘20	707935	63160	124179	255767	1151042
2020-‘21	721977	64637	125792	260629	1173034
2021-‘22	736297	66148	127426	265583	1195453
2022-‘23	750902	67694	129081	270631	1218307

3.5.5 Projected production for cotton

Variety wise Required Growth Rate and Annual Growth Rate for Cotton in Ariyalur district are presented in Table 3.16. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Cotton yield was positive. Annual Growth Rate for Cotton yield was higher for RCH BT II with 3.18 per cent, while it was lower for Mahyco with 0.68 per cent. Required Growth Rate for cotton yield was higher for RCH BT II with 35.00 per cent, while it was lower for Mahyco with 7.50 per cent.

Table 3.16 Variety wise Required Growth Rate and Annual Growth Rate for Cotton in Ariyalur district

Sl. No.	Ruling Varieties	Required Growth Rates	Annual Growth Rate
1	RCH BT II	35.00	3.18
2	Bol Guard II	20.48	1.86
3	Namdhari	27.78	2.53
4	Mahyco	7.50	0.68
5	Bunny	12.00	1.09

Variety wise projected cotton yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.17. It could be observed from the Table, that projected Cotton yield would increase for all major Cotton varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.17 Variety wise projected Cotton yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	RCH BT II	Bol Guard II	Namdhari	Mahyco	Bunny
2011-‘12	2000	2100	1800	2000	2000
2012-‘13	2064	2139	1845	2014	2022
2013-‘14	2129	2179	1892	2027	2044
2014-‘15	2197	2219	1940	2041	2066
2015-‘16	2267	2261	1989	2055	2089
2016-‘17	2339	2303	2039	2069	2111
2017-‘18	2414	2346	2091	2083	2135
2018-‘19	2490	2389	2143	2097	2158
2019-‘20	2570	2434	2197	2112	2181
2020-‘21	2651	2479	2253	2126	2205
2021-‘22	2736	2525	2310	2141	2229
2022-‘23	2823	2572	2368	2155	2254

It could be observed from the Table 3.17, that yield would increase for all varieties of Cotton grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Cotton varieties grown in Ariyalur district are presented in Table 3.18.

Table 3.18 Variety wise projected Cotton yield based on area in Ariyalur district (tones per given area)

Year / Variety	RCH BT II	Boll Guard II	Namdhari	Mahyco	Bunny	Total
Proportion of varieties	0.50	0.19	0.09	0.10	0.13	1
Area (unit)	**4000**	**1500**	**700**	**800**	**1000**	**8000**
2012-‘13	8255	3209	1292	1611	2022	16388
2013-‘14	8517	3268	1324	1622	2044	16776
2014-‘15	8788	3329	1358	1633	2066	17174
2015-‘16	9068	3391	1392	1644	2089	17584
2016-‘17	9356	3454	1427	1655	2111	18005
2017-‘18	9654	3519	1463	1667	2135	18437
2018-‘19	9961	3584	1500	1678	2158	18881
2019-‘20	10278	3651	1538	1689	2181	19338
2020-‘21	10605	3719	1577	1701	2205	19807
2021-‘22	10943	3788	1617	1712	2229	20289
2022-‘23	11291	3859	1658	1724	2254	20785

3.5.6 Projected production for Gingelly

Variety wise Required Growth Rate and Annual Growth Rate for Gingelly in Ariyalur district are presented in Table 3.19. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Gingelly yield were positive. Annual Growth Rate for Gingelly yield was higher for TMV-4 with 6.67 per cent, while it was lower for TMV- 3 with 5.32 per cent. Required Growth Rate for Gingelly yield was higher for TMV-4 with 73.33 per cent, while it was lower for TMV- 3 with 58.54 per cent.

Table 3.19 Variety wise required Growth Rate and Annual Growth Rate for Gingelly in Ariyalur district

Sl. No.	Ruling Varieties	Required Growth Rate	Annual Growth Rate
1	TMV- 3	58.54	5.32
2	TMV-4	73.33	6.67
3	TMV-6	60.00	5.45

Variety wise projected Gingelly yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.20. It could be observed from the Table that projected Gingelly yield would increase for all major Gingelly varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.20 Variety wise projected Gingelly yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	TMV- 3	TMV-4	TMV-6
2011-‘12	410	450	450
2012-‘13	432	480	475
2013-‘14	455	512	500
2014-‘15	479	546	528
2015-‘16	504	583	557
2016-‘17	531	621	587
2017-‘18	560	663	619
2018-‘19	589	707	653
2019-‘20	621	754	688
2020-‘21	654	804	726
2021-‘22	689	858	765
2022-‘23	725	915	807

It could be observed from the Table 3.21, that yield would increase for all varieties of Gingelly grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Gingelly varieties grown in Ariyalur district are presented in Table 3.21.

Table 3.21 Variety wise projected Gingelly yield based on area in Ariyalur district (tones per given area)

Year / Variety	TMV- 3	TMV-4	TMV-6	Total
Proportion of varieties	0.50	0.22	0.28	1
Area	**450**	**200**	**250**	**900**
2012-‘13	194	96	119	409
2013-‘14	205	102	125	432
2014-‘15	216	109	132	457
2015-‘16	227	117	139	483
2016-‘17	239	124	147	510
2017-‘18	252	133	155	539
2018-‘19	265	141	163	570
2019-‘20	279	151	172	602
2020-‘21	294	161	181	637
2021-‘22	310	172	191	673
2022-‘23	326	183	202	711

3.6. Projected production for predominant Horticultural crops 2012-‘13 to 2022-‘23

3.6.1 Projected production for Cashew

Variety wise Required Growth Rate and Annual Growth Rate for Cashew in Ariyalur district are presented in Table 3.22. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Cashew yield were positive. Annual Growth Rate for Cashew yield was higher for VRI 2 with 18.18 per cent, while it was lower for local varieties with 5.45 per cent. Required Growth Rate for Cashew yield was higher for VRI 2 with 200.00 per cent, while it was lower for local varieties with 60.00 per cent.

Table 3.22 Variety wise required Growth Rate and Annual Growth Rate for Cashew in Ariyalur district

Ruling Varieties	Required Growth Rate	Annual Growth Rate
VRI 2	200.00	18.18
VRI 3	191.67	17.42
Local Varieties	60.00	5.45

Variety wise projected Cashew yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.23. It could be observed from the Table, that projected Cashew yield would increase for all major Cashew varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.23 Variety wise projected Cashew yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	VRI 2	VRI 3	Local Varieties
2011-‘12	1000	1200	500
2012-‘13	1182	1409	527
2013-‘14	1397	1655	556
2014-‘15	1651	1943	586
2015-‘16	1951	2281	618
2016-‘17	2305	2679	652
2017-‘18	2725	3146	688
2018-‘19	3220	3694	725
2019-‘20	3805	4338	765
2020-‘21	4497	5093	806
2021-‘22	5315	5981	850
2022-‘23	6281	7023	897

It could be observed from the Table 3.24, that yield would increase for all varieties of Cashew grown in Ariyalur district over the period from 201-‘13 to 2022-‘23. Variety wise projected yield based on area under different Cashew varieties grown in Ariyalur district are presented in Table 3.24.

Table 3.24 Variety wise projected Cashew yield based on area in Ariyalur district (tones per given area)

Year / Variety	VRI 2	VRI 3	Local Varieties	Total
Proportion of varieties	0.05	0.10	0.85	1
Area	**1395**	**2788**	**23705**	**27,888**
2012-‘13	1649	3929	12499	18,076
2013-‘14	1948	4613	13181	19,742
2014-‘15	2303	5417	13900	21,619
2015-‘16	2721	6361	14658	23,740
2016-‘17	3216	7469	15457	26,142
2017-‘18	3801	8770	16301	28,872
2018-‘19	4492	10299	17190	31,980
2019-‘20	5309	12093	18127	35,529
2020-‘21	6274	14200	19116	39,590
2021-‘22	7414	16674	20159	44,248
2022-‘23	8763	19580	21258	49,601

3.6.2 Projected production for Chillies

Variety wise Required Growth Rate and Annual Growth Rate for Chillies in Ariyalur district are presented in Table 3.25. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Chillies yield were positive. Annual Growth Rate for Chillies yield was higher for Hybrid with 3.64 per cent, while it was lower for K2 with 1.82 per cent. Required Growth Rate for Chillies yield was higher for Hybrid with 40.00 per cent, while it was lower for K2 with 20.00 per cent.

Table 3.25 Variety wise Required Growth Rate and Annual Growth Rate for Chillies in Ariyalur district

Ruling Varieties	Required Growth Rate	Annual Growth Rate
K2	20.00	1.82
K1	38.89	3.54
Hybrid	40.00	3.64

Variety wise projected Chillies yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.26. It could be observed from the Table, that projected Chillies yield would increase for all major Chillies varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.26 Variety wise projected Chillies yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	K2	K1	Hybrid
2011-‘12	2500	1800	2500
2012-‘13	2545	1864	2591
2013-‘14	2592	1930	2685
2014-‘15	2639	1998	2783
2015-‘16	2687	2068	2884
2016-‘17	2736	2141	2989
2017-‘18	2785	2217	3098
2018-‘19	2836	2296	3210
2019-‘20	2888	2377	3327
2020-‘21	2940	2461	3448
2021-‘22	2994	2548	3573
2022-‘23	3048	2638	3703

It could be observed from the Table 3.27, that yield would increase for all varieties of Chillies grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Chillies varieties grown in Ariyalur district are presented in Table 3.27.

Table 3.27 Variety wise projected Chillies yield based on area in Ariyalur district (Tones per given area)

Year / Variety	K2	K1	Hybrid	Total
Proportion of varieties	0.84	0.13	0.03	1
Area	**321**	**50**	**10**	**381**
2012-‘13	817	93	26	936
2013-‘14	832	96	27	955
2014-‘15	847	100	28	975
2015-‘16	862	103	29	995
2016-‘17	878	107	30	1015
2017-‘18	894	111	31	1036
2018-‘19	910	115	32	1057
2019-‘20	927	119	33	1079
2020-‘21	944	123	34	1101
2021-‘22	961	127	36	1124
2022-‘23	978	132	37	1147

3.6.3 Projected production for Mango

Varieties wise Required Growth Rate and Annual Growth Rate for Mango in Ariyalur district are presented in Table 3.28. It could be observed from the table, that both Required Growth Rate per annum and Annual Growth Rate of Mango yield is positive. Annual Growth Rate for Mango yield was higher for Bangalora with 6.06 per cent, while it was lower for Neelum with 5.05 per cent. Required Growth Rate for Mango yield was higher for Bangalora with 66.67 per cent, while it was lower for Neelum with 55.56 per cent.

Table 3.28 Variety wise Required Growth Rate and Annual Growth Rate for Mango in Ariyalur district

Ruling Varieties	Required Growth Rate	Annual Growth Rate
Bangalora	66.67	6.06
Neelum	55.56	5.05

Variety wise projected Mango yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.29. It could be observed from the Table, that projected Mango yield would increase for all major Mango varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.29 Variety wise projected Mango yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	Bangalora	Neelum
2011-‘12	9000	9000
2012-‘13	9545	9455
2013-‘14	10124	9932
2014-‘15	10738	10434
2015-‘16	11388	10961
2016-‘17	12079	11514
2017-‘18	12811	12096
2018-‘19	13587	12707
2019-‘20	14410	13348
2020-‘21	15284	14023
2021-‘22	16210	14731
2022-‘23	17192	15475

It could be observed from the Table 3.30, that yield would increase for all varieties of Mango grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Mango varieties grown in Ariyalur district are presented in Table 3.30.

Table 3.30 Variety wise projected Mango yield based on area in Ariyalur district (tonnes per given area)

Year / Variety	Bangalora	Neelum	Total
Proportion of varieties	0.79	0.21	1
Area	**385**	**105**	**490**
2012-‘13	3675	993	4,668
2013-‘14	3898	1043	4,941
2014-‘15	4134	1096	5,229
2015-‘16	4384	1151	5,535
2016-‘17	4650	1209	5,859
2017-‘18	4932	1270	6,202
2018-‘19	5231	1334	6,565
2019-‘20	5548	1402	6,950
2020-‘21	5884	1472	7,357
2021-‘22	6241	1547	7,788
2022-‘23	6619	1625	8,244

3.6.4 Projected production for Drumstick, Onion and Tapioca

Variety wise Required Growth Rate and Annual Growth Rate for Drumstick, Onion and Tapioca in Ariyalur district are presented in Table 3.31. It could be observed from the Table, that both Required Growth Rate per annum and Annual Growth Rate of Drumstick, Onion and Tapioca yield were positive. Annual Growth Rate for Drumstick variety PKM1 was 3.90 per cent and Required Growth Rate was 42.86 per cent. The Annual Growth Rate for Onion variety Co 5 was 4.55 per cent and Required Growth Rate was 50.00 per cent. The Annual Growth Rate for Tapioca variety Co2 was 2.27 per cent and Required Growth Rate was 25.00 per cent.

Table 3.31 Variety wise Required Growth Rate and Annual Growth Rate for Drumstick, Onion and Tapioca in Ariyalur district

Ruling Varieties	Required Growth Rate	Annual Growth Rate
Drumstick		
PKM 1	42.86	3.90
Onion		
Co 5	50.00	4.55
Tapioca		
Co2	25.00	2.27

Variety wise projected Drumstick yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.32. It could be observed from the Table, that projected Drumstick yield would increase for Drumstick varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.32 Variety wise projected Drumstick yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	PKM 1
2011-‘12	35000
2012-‘13	36364
2013-‘14	37780
2014-‘15	39252
2015-‘16	40782
2016-‘17	42371
2017-‘18	44021
2018-‘19	45736
2019-‘20	47518
2020-‘21	49370
2021-‘22	51293
2022-‘23	53292

It could be observed from the Table 3.33, that yield would increase for the variety Drumstick grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Drumstick variety grown in Ariyalur district is presented in Table 3.33.

Table 3.33 Variety wise projected Drumstick yield based on area in Ariyalur district (tones per given area)

Year / Variety	PKM 1	Total
Proportion of varieties	1.00	1
Area	**257**	**257**
2012-‘13	9345	9,345
2013-‘14	9710	9,710
2014-‘15	10088	10,088
2015-‘16	10481	10,481
2016-‘17	10889	10,889
2017-‘18	11313	11,313
2018-‘19	11754	11,754
2019-‘20	12212	12,212
2020-‘21	12688	12,688
2021-‘22	13182	13,182
2022-‘23	13696	13,696

3.6.5 Projected production for Onion

Variety wise projected Onion yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.34. It could be observed from the table, that projected Onion yield would increase for Onion varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.34 Variety wise projected Onion yield based on AGR in Ariyalurdistrict(Kg/ha)

Year / Variety	Co 5
2011-‘12	8000
2012-‘13	8364
2013-‘14	8744
2014-‘15	9141
2015-‘16	9557
2016-‘17	9991
2017-‘18	10445
2018-‘19	10920
2019-‘20	11416
2020-‘21	11935
2021-‘22	12478
2022-‘23	13045

It could be observed from the Table 3.35, that yield would increase for the variety Onion grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Variety wise projected yield based on area under different Onion variety grown in Ariyalur district are presented in Table 3.35.

Table 3.35 Variety wise projected Onion yield based on area in Ariyalur district (tonnes per given area)

Year / Variety	Co 5	Total
Proportion of varieties	1	1
Area	**22**	**22**
2012-‘13	184	184
2013-‘14	192	192
2014-‘15	201	201
2015-‘16	210	210
2016-‘17	220	220
2017-‘18	230	230
2018-‘19	240	240
2019-‘20	251	251
2020-‘21	263	263
2021-‘22	275	275
2022-‘23	287	287

3.6.6 Projected of production for Tapioca

Variety wise projected Tapioca yield based on Annual Growth Rate (AGR) in Ariyalur district is presented in Table 3.36. It could be observed from the Table, that projected Tapioca yield would increase for Tapioca varieties grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23.

Table 3.36 Variety wise projected Tapioca yield based on AGR in Ariyalur district (Kg/ha)

Year / Variety	Co2
2011-‘12	20000
2012-‘13	20455
2013-‘14	20919
2014-‘15	21395
2015-‘16	21881
2016-‘17	22378
2017-‘18	22887
2018-‘19	23407
2019-‘20	23939
2020-‘21	24483
2021-‘22	25040
2022-‘23	25609

It could be observed from the Table 3.37, that yield would increase for variety of Tapioca grown in Ariyalur district over the period from 2012-‘13 to 2022-‘23. Varieties wise projected yield based on area under different Tapioca variety grown in Ariyalur district are presented in Table 3.37.

Table 3.37 Variety wise projected Tapioca yield based on area in Ariyalur district (tones per given area)

Year / Variety	Co2	Total
Proportion of varieties	1.00	1.00
Area	**146**	**146.00**
2012-‘13	2986	2,986
2013-‘14	3054	3,054
2014-‘15	3124	3,124
2015-‘16	3195	3,195
2016-‘17	3267	3,267
2017-‘18	3342	3,342
2018-‘19	3417	3,417
2019-‘20	3495	3,495
2020-‘21	3575	3,575
2021-‘22	3656	3,656
2022-‘23	3739	3,739

3.7 Yield gap analysis

The difference between maximum yield in Crop Cutting Experiment (potential yield) and progressive farmers yield (achievable yield) is termed as yield gap I.

The maximum yield in Crop Cutting Experiments (CCE) were compared with yield obtained by progressive farmers yield(achievable yield) for the estimation of yield gap-I. The CCE yield details were obtained from the office of the Joint Director of Agriculture, Ariyalur.

- **Yield Gap-I** = Maximum yield in CCE (potential yield) - Progressive farmers yield (achievable yield)
- **Yield Gap-II** = The difference between progressive farmers yield (achievable yield) and farmers average yield (actual yield) is termed as yield gap II.

The yield obtained by the farmers under improved technologies were recorded as progressive farmers yield (achievable yield) and compared with the district level average yield for the estimation of yield gap-II. The progressive farmers yield were obtained from the office of Joint Director of Agriculture, Ariyalur and it was crosschecked with officials in line

Departments. Yield obtained at district level represent the farmers average yield (actual yield) and for triennium ending (2009-'2011) data were collected from Season and Crop report, Department of Economics and Statistics, Tamil Nadu. Yield gap-II was calculated as follows.

- **Yield Gap-II** = Progressive farmers yield (achievable yield) - Farmers average yield (actual yield)

Over all yield gap = Maximum of Potential yield **or** Progressive farmers yield – Farmers average yield

3.7.1 Yield gaps analysis for Agricultural crops

The difference between maximum yield in Crop Cutting Experiments (CCE) (potential yield) and progressive farmers yield (achievable yield) was termed as yield gap I. The difference between progressive farmers yield (achievable yield) and farmers average yield (actual yield) was termed as yield gap II. The results of yield gap-I and yield gap-II for predominant Agricultural crops in the district was estimated and presented in Table 3.38 and 3.39.

The yield gap-I was negative for all varieties of Paddy raised in Ariyalur district. The yield gap-II was highest for Paddy variety C0-43 (3500 kg/ha) and it was lowest for ADT-43 (800 kg/ha). In the case of Groundnut, the yield gap-I was higher for TMV 7 with 700 kg/ha and it was lowest for VRI 3 with 70 kg/ha. Whereas, yield gap-II was highest for JL 24 with 1100 kg/ha and it was lowest for K6 with 200 kg/ha. For Maize, the yield gap-I was higher for CP 818 with 2400 kg/ha and it was lowest for NK 6240 with 1000 kg/ha. Whereas, yield gap-II was highest for NK 6240 with 2300 kg/ha and it was lowest for CP 818with 1300 kg/ha. InSugarcane, yield gap-I was higher for COC 92061 with 3000 kg/ha and it was lowest for COC 86062 with 2000 kg/ha. Whereas, yield gap-II was highest for COSI 86071 with 25000 kg/ha and it was lowest for COC 90063 with 2300 kg/ha.

In the case of Cotton, the yield gap-I was negative for all varieties of Cotton used in Ariyalur district. Whereas, yield gap-II was highest for RCH BT II with 600 kg/ha and it was lowest for Mahyco with 150 kg/ha. For gingelly, the yield gap-I was negative for all varieties of Gingelly used to grow in Ariyalur district. Whereas, yield gap-II was highest for TMV-4 with 330 kg/ha and it was lowest for TMV- 3 with 240 kg/ha.

Table 3.38 Variety wise yield gap for Agricultural crops in Ariyalur district

Sl. No.	Ruling Varieties	Potential Yield	Progressive farmer yield	Average Yield	Yield GAP I (Pdn-Prog)	Yield GAP II (Prog-Avg.)	Overall Yield Gap (Max-Avg)
	Paddy						
1	ADT-36	5000	5600	4500	-600	1100	1100
2	ADT-38	6200	7250	6000	-1050	1250	1250
3	ADT-39	6400	7750	6000	-1350	1750	1750
4	ADT-43	8100	6800	6000	1300	800	2100
5	ADT-45	6140	7200	6000	-1060	1200	1200
6	C0-43	6600	8500	5000	-1900	3500	3500
7	CO-46	6000	6700	5500	-700	1200	1200
8	CR1009	5800	7200	5100	-1400	2100	2100
	Groundnut						
1	VRI 2	2700	2800	2000	-100	800	800
2	VRI 3	2670	2600	1800	70	800	870
3	TMV 7	2800	2100	1600	700	500	1200
4	TMV 13	2550	2700	2100	-150	600	600
5	K6	2700	2000	1800	700	200	900
6	JL 24	3650	3100	2000	550	1100	1650
	Maize						
1	NK 6240	7500	6500	4200	1000	2300	3300
2	CP 808	7100	5800	4300	1300	1500	2800
3	CP 818	7700	5300	4100	2400	1200	3600

Table 3.39 Variety wise yield gap for Agricultural crops in Ariyalur district

Sl. No.	Ruling Varieties	Potential Yield	Progressive farmer yield	Average Yield	Yield GAP I	Yield GAP II	Overall Yield Gap
	Sugarcane						
1	COC 86062	134000	132000	110000	2000	22000	24000
2	COSI 86071	132000	130000	105000	2000	25000	27000
3	COC 90063	128000	125000	112000	3000	13000	16000
4	COC 92061	133000	130000	110000	3000	20000	23000
	Cotton						
1	RCH BT II	2100	2700	2100	-600	700	700
2	Bol Guard II	2200	2530	2100	-330	430	430
3	Namdhari	2000	2300	1800	-300	500	500
4	Mahyco	2000	2150	2000	-150	150	150
5	Bunny	2150	2240	2000	-90	240	240
	Gingelly						
1	TMV- 3	450	650	410	-200	240	240
2	TMV-4	700	780	450	-80	330	330
3	TMV-6	700	720	450	-20	270	270

3.7.2 Yield gap analysis for Horticultural crops

The results of yield gap-I and yield gap-II for predominant horticultural crops in the district was estimated and presented in Table 3.40.

In the case of Cashew, yield gap-I was highest for VRI 3 with 1900 kg/ha and it was lowest for VRI 2 with 1500 kg/ha. Whereas, yield gap-II was highest for VRI 2 with 500 kg/ha and it was lowest for VRI 3with 500 kg/ha. In the case of Chillies the yield gap-I was 500 kg/ha for all varieties grown in Ariyalur district. Whereas, yield gap-II was highest for Hybrid

with 500 kg/ha and it was lowest for K1 with 200 kg/ha. For Drumstick, the yield gap-I was 10,000 kg/ha and it was 5000 kg/ha for PKM1 variety being grown at Ariyalur district.

Mango, yield gap-I was higher for Bangalora with 7000 kg/ha and it was lowest for Neelum with 6000 kg/ha, whereas, yield gap-II was negative for both of varieties grown in Ariyalur district. In the case of Onion, the yield gap-I was 2000 kg/ha and it was 2000 kg/ha for Co 5 only. For Tapioca, the yield gap-I was 2000 kg/ha for Co2.

Table 3.40 Varieties wise yield gap for Horticultural crops in Ariyalur district

Ruling Varieties	Potential Yield	Progressive farmer yield	Average Yield	Yield GAP I	Yield GAP II	Overall Yield Gap
1.Cashew						
VRI 2	3000	1500	1000	1500	500	2000
VRI 3	3500	1600	1200	1900	400	2300
2.Chillies						
K2	3000	2500	2500	500	0	500
K1	2500	2000	1800	500	200	700
Hybrid	3500	3000	2500	500	500	1000
3.Drumstick						
PKM 1	50000	40000	35000	10000	5000	15000
4.Mango						
Bangalora	15000	8000	9000	7000	-1000	6000
Neelum	14000	8000	9000	6000	-1000	5000
5.Onion						
Co (On) 5	12000	10000	8000	2000	2000	4000
6.Tapioca						
CO 2	25000	23000	20000	2000	3000	5000

3.8 Recommended strategies to reduce yield gap

The strategies to reduce yield gap are presented in Table 3.41

Table 3.41 Technological interventions and strategies to reduce the yield gaps

Major crops &Enterprises being practiced in the district	Prioritized problems in these crops/ Enterprises	Name of Intervention	Technology options	Proposed Intervention
Paddy	Lack of knowledge on high yielding varieties of paddy	Assessment of location specific high yielding rice varieties	The location specific high yielding varieties of paddy released by TNAU are found suitable for this district **Season: High Yielding Varieties** • **Kar (May-June):** ADT 36, ASD 16, ASD18, MDU 5, ADT 43, CO 47, CORH 3, ADT(R) 45, ADT(R) 47 • **Samba / Late Samba (Aug - Oct):** White Ponni, CO 43, CO(R) 49, ADT(R) 46 • **Navarai (Dec –Jan):** ADT 36, MDU 5, CORH 3	On farm trial, field demonstrations, seed multiplication and distribution of hybrid seeds to the farmers etc.,
	Seed borne diseases caused by fungus and bacteria leads to severe yield loss	Management of seed borne diseases through seed treatment bio control agents and chemicals	• Seedling dip with *Pseudomonas fluorescens* (Pf-1) @ 2.5 kg/ha or seed treatment (10g/kg)	On farm trial, field demonstrations, mass production of *P. fluorescens* at Research stations, KVK's, constituent colleges for supply to the farmers at subsidy, organizing training on mass production of bio control agents

Major crops & Enterprises being practiced in the district	Prioritized problems in these crops/Enterprises	Name of Intervention	Technology options	Proposed Intervention
	Reduction in yield and incurring of loss by the farmers due to erratic rainfall. Reduction in quality of rice due to nutrient imbalance	Popularization of SRI system of rice cultivation in the drought prone areas	• Adoption of SRI technique with low seed rate (5-7 kg/ha), wider spacing (25 cm × 15cm) and improved package of practices. • Foliar Nutrition in flowering stage: - 2% DAP + 1% KCL + 1% Urea at PI and 50% flowering stage.	Field demonstrations, distribution of seeds to farmers at subsidized rate. Production and supply of TNAU micronutrient mixtures.
	Pests and diseases like rice blast, sheath blight, rice rot and white tip nematodes and sucking pests are widely prevalent which results in yield decline.	Assessment of efficacy of pesticides and bio control agents on pest control in rice. Mass multiplication of bio control agents at district headquarters/Research stations/KVK's	• **Rice blast & Sheath blight** – Seed treatment with TNAU Pf 1 or spray Carbendazim 50WP @ 500g/ha or Tricyclozole 75 WP @ 500g/ha or Azoxystrobin 25 SC @ 500 ml/ha or Neem oil at 3% • **Rice rot and White tip nematodes -** Seed treatment with *Pseudomonas fluorescens*(10 g/kg seed) and as foliar spraying @ 1 kg/ha thrice at 45, 55 and 65 DAT. • **Sucking pests (Brown leafhopper, Green leaf hopper, Thrips& Gall midge), Stem borer and leaf folder** – Spray Fipronil 5% SC 1000-1500 ml/ha or Triazophos 40% EC 625-1250 ml/ha or Seed treatment @ 5g/Kg of seed and foliar application of *Beauveriabassiana*@ 5g/l twice at 15 days interval	On farm trial, field demonstrations, mass multiplication, and supply of TNAU bio control agents at subsidized rate from all the Research stations and KVK's.

Major crops &Enterprises being practiced in the district	Prioritized problems in these crops/Enterprises	Name of Intervention	Technology options	Proposed Intervention
	Scarcity of labour	Popularization of agricultural equipment's and machineries in paddy cultivation	• **Seed drill** – Sow of seeds with 20 cm inter row spacing • **Rotary weeder** - Single row or double rowweeder for weeding • **Combine harvester** for harvesting	Distribution of seed drill, rotary weeder to the paddy farmers at subsidized rate. Make availability of combine harvester at the Department of Agricultural Engineering for different blocks on rental basis. Conducting training and demonstrations.
Groundnut	Lack of knowledge on high yielding varieties	Popularization and distribution of seed nuts through Department of Agriculture	**Season: High Yielding Varieties** **Karthigaipattam (Nov – Dec):** TMV 7, CO 3, COGn 4, VRI 2, VRI 3, ALR 3, VRIGn5, VRIGn 6, TMVGn 13. **Anippattam:** TMV 7, VRI 2, VRIGn 5, VRI Gn 6, TMVGn 13	Distribution of seeds at subsidy, Conducting training and demonstrations. on performance of high yielding varieties.

Major crops & Enterprises being practiced in the district	Prioritized problems in these crops/Enterprises	Name of Intervention	Technology options	Proposed Intervention
	Less productivity due to non-adoption of advanced technologies	Promotion / dissemination of advanced crop cultivation technologies	• **Seed Treatment** with talc formulation of *Trichodermaviride*@ 4 g/kg seed or *Pseudomonas fluorescens*@ 10 g/kg seed (or) with Thiram or Mancozeb @ 4 g/kg of seed or Carboxin or Carbendazim at 2 g/kg of seed (or) Treat the seeds with 3 packets (600 g/ha) of Rhizobial culture TNAU14 + 3 packets of Azospirillum (600 g/ha) and 3 packets (600 g/ha) of Phosphobacteria or 6 packets of Azophos (1200 g/ha) developed at TNAU using rice kanji as binder • **Micronutrients:** TNAU MN mixture @ 7.5 kg /ha as Enriched FYM (Prepare enriched FYM at 1:10 ratio of MN mixture & FYM; mix at friable moisture &incubate for one month in shade) under rainfed conditions. • **Apply Calcium Sulphate (Gypsum)** @ 400 kg/ha by the side of the plants on 40th to 70th day depending upon soil moisture. Avoid gypsum in calciferous soils. Gypsum is effective in soils deficient in calcium and sulphur.	Mass production and supply of bio control agents / bio fertilizer at subsidy, distribution of TNAU MN mixture during rain fed conditions, supply of gypsum, polythene mulching, dissemination of technologies etc.,

			Application of gypsum encourages pod formation and better filling up of the pods. Application of gypsum at the rate of 50 % basal both in rainfed and irrigated condition reduces Kalahasty malady and pod scab nematode under rainfed condition. • Spray nutrient solution prepared by soaking DAP 2.5 kg, Ammonium sulphate 1 kg and borax 0.5 kg in 37 lit of water overnight. The next day morning it can be filtered and about 32 litre of mixture can be obtained and it may be diluted with 468 lit of water so as to made up to 500 litre to spray for one ha. Planofix at the rate of 350 ml can also be mixed while spraying. This can be sprayed on 25th and 35th day after sowing under rainfed condition. • **Polythene Film Mulching:** Spread black polythene sheet (90 cm width) over the soil surface. • **Foliar spray of TNAU Groundnut Rich** @ 2 kg/acre in 200 litres of water at peak flowering and at pod development stages and the increases flower retention, pod filling and improves moisture stress tolerance and pod yield. • Spraying 0.5% Potassium chloride during flowering and pod development stages will aid to mitigate the ill effects from water	

			stress.	
Major crops & Enterprises being practiced in the district	**Prioritized problems in these crops/Enterprises**	**Name of Intervention**	**Technology options**	**Proposed Intervention**
	Harvesting and separation of groundnut husk is a laborious task	Popularization of TNAU ground nut stripper	• **Farm mechanization:** Groundnut stripper developed by TNAU can be used for stripping the pods from the plants	Distribution of groundnut stripper at subsidy, training and demonstrations on groundnut stripping
Mango	Less productivity due to less population and older varieties	Promotion of high density planting systems and advanced management techniques	• **High Density Planting:** 5 m x 5 m (400 plants / ha). Dwarf statured varieties with narrow canopy are much suitable for HDP system. • **Double hedge row system:** Adopt a spacing of 5 m x 5 m within double rows and 10 m between successive double rows (266 plants / ha)	Training and field demonstrations on HDP systems in fruit crops, subsidy for promotion of HDP systems
	Reduction on productivity by old varieties and long old orchards	Promotion of rejuvenating old orchards through top working techniques	• **Top working of senile orchards for rejuvenation:** Use scions of choice varieties like Alphonso and Banganapalli for top working. Behead the trees to be top worked portion during July- August leaving the main trunk at a convenient height and allow for new shoots to develop. Adopt cleft method of grafting or softwood grafting on the emerging shoots on the main stem from the cut end during September-October.	Training and demonstrations on rejuvenation, introduction of subsidy component for converting unfruitful old orchards to fruitful one, dissemination of technologies

Major crops & enterprises being practiced in the district	Prioritized problems in these crops/enterprises	Name of Intervention	Technology options	Proposed Intervention
	Fruit yield is reduced by non-application of nutrients and chemicals at critical stages of the crop	Foliar spraying of chemicals and secondary nutrients at critical stages of the crop during peak season	• Spray NAA @ 20 ppm at flowering to increase the fruit retention. • During February 0.5% Urea (5 g / lit.) or 1% Potassium nitrate (10 g / lit.) may be sprayed to induce flowering, if trees do not flower by that time. • Spray 2% KNO3 at mustard size to increase fruit set and retention of fruits. • Spray 2 % Sulphate of potash at pea stage and 15 days after to improve yield and quality.	Distribution of nutrients and chemicals at subsidy Training and demonstrations on chemical application Dissemination of technologies through pamphlets (multilingual languages), books, notices etc.,
	Irregular bearing nature of mango leads to fluctuation in the yield and income to the farmers	Promotion of off season production of mango through chemical application and pruning time	• To induce off-season flowering**,** heading back of 10 cm terminal growth after the emergence of new growth (vegetative and floral growth) during December to January along with soil application of Paclobutrazol @ 0.75g a.i. per tree during March and April is recommended for mango cv. Neelum. Keeping good soil moisture conditions and nutrient health status of the plant are very important when Paclobutrazol application is resorted.	Training and demonstration on off season mango production Distribution of Paclobutrazol in subsidy

Major crops & Enterprises being practiced in the district	Prioritized problems in these crops/Enterprises	Name of Intervention	Technology options	Proposed Intervention
	Economic loss occurs due to mis management of pests and diseases in the mango orchard	Integrated disease and pest management through new generations fungicides and insecticides	• **Anthracnose and Stalk end-rot:** Spray Mancozeb 2 g / lit or Carbendazim 1 g / lit or Thiophanate methyl 1 g / lit or Chlorothalonil 2 g / lit as pre-harvest spray, 3 times at 15 days interval (or) Spray chitin based *Pseudomonas fluorescens* (Pf 7) immediately after flowering @ 5 g / lit five times at 21 days interval.	• Supply of recommended dose of insecticides and fungicides as a kit on subsidy basis during onset of the pests and diseases
Cotton	Lack of knowledge on high yielding varieties of cotton	Promotion of high yield varieties	**Season: High Yielding Varieties** • **Winter Irrigated (Aug – Sep):** MCU 5, Surabhi, TCHB 213, MCU 12, MCU 13 • **Rain fed (Sep-Oct):** LRA 5166, K 11, KC 2, SVPR 2, KC 3	On farm trail, field demonstrations Supply of seeds of high yielding varieties at subsidized cost
	Lack of awareness on application of basal fertilizers and seed treatment at the time of planting	Popularization of bio fertilizers for basal application and seed treatment techniques Mass production of bio fertilizers at research stations, KVKs and constituent colleges.	• **Basal application of fertilizers:** Azophos 2kg/ha or Azospirillum + Phosphorus Solubilising Bacteria + Pink Pigmented Facultative Methylotropics @ 2.2 kg/ha each apply as basal application. • **Seed treatment:** Seed treatment with 3 packets of Azospirillum (600 g/ha) and 3 packets (600 g/ha) of Phosphobacteria or 6 packets of Azophos (1200 g/ha). In addition	Field demonstrations, supply of bio fertilizers at subsidized cost

Major crops & enterprises being practiced in the district	Prioritized problems in these crops/enterprises	Name of Intervention	Technology options	Proposed Intervention
			apply 10 packets of Azospirillum (2000 g/ha) and 10 packets (2000 g/ha) of Phosphobacteria or 20 packets of Azophos (4000 g/ha) mixed with 25 kg FYM and 25 kg of soil on the seed line. This saves 25% nitrogen besides increasing yield.	
	Yield and quality were reduced by the non-adoption of integrated nutrient management system	Popularization and adoption of STCR-IPNS system of plant nutrition system. Popularization of TNAU MN mixture	• Adoption of soil test crop response based integrated plant nutrition system (STCR- IPNS) • **Micro nutrient application:** TNAU MN mixture 12.5 kg/ha for variety and 15 kg/ha for hybrid apply as enriched FYM or apply 12.5 kg of micronutrient mixture formulated by the Department of Agriculture, Tamil Nadu with enough sand to make a total quantity of 50 kg for one ha.	On farm trial, supply of TNAU micronutrient mixture at subsidized cost.

Major crops & enterprises being practiced in the district	Prioritized problems in these crops/enterprises	Name of Intervention	Technology options	Proposed Intervention
	Growth and yield reduction by the lack of growth regulators	Testing of crop boosters for enhance of yield and quality of cotton	• Spray 40 ppm NAA at 60 and 90 days after sowing on the crop to prevent early shedding of buds and squares and to increase the yield.	On Farm trial, field demonstration
	Reduction in yield and cotton quality due to occurrence of pests and disease	Testing of NPV virus and pesticides on boll worm control. Assessment of bacteriomycin and fungicide on cotton leaf blight	• **American bollworm:** Application of Nuclear Polyhedrosis Virus (NPV) at 3 x 10 12 POB /ha in evening hours at 7th and 12th week after sowing or spraying of Fipronil 5%SC 2000 ml/ha at early stages or spraying of Carbaryl 50 WP 2.5 kg/ha at boll formtion and maturation stage. • **Bacterial leaf blight:** Spray Streptomycin sulphate + Tetracycline mixture 100g + Copper oxychloride 1250g/ha. Repeat spraying at 10 days interval twice or thrice if drizzling continues.	Filed demonstrations, Popularization of bacteriomycin on cotton leaf blight control.

CHAPTER IV

DISTRICT PLAN

The interventions proposed, the associated outlays, the physical targets, budgetary requirements, time frame for achievements in the Agriculture, Horticulture, Agricultural Engineering, Agricultural Marketing, Animal Husbandry, Dairy Development, Fisheries, Public Welfare Department and Cooperative sectors are discussed in this chapter. This would comprehend the activities and the achievements to be made in beyond twelfth plan.

4.1. Agriculture

The development of agriculture sector has been aimed at by mainly pushing up the productivity levels of the major crops *viz.,* Rice, Millets, Pulses, Oilseed, Oil palm, Cotton, Sugarcane, Coconut and other interventions like training, infrastructure development, soil health management, rainfed area development, farm mechanization and agricultural information technology in the district. Activities planned for and the costs involved under each crop are detailed below.

4.1.1. Enhancing the rice productivity

Rice is the major crop in Ariyalur District of Tamil Nadu as it occupies an area of around 23,772 ha and the productivity is around 5 tonnes/ha. The production and distribution of seeds, fertilizers, manures and agriculture machineries have to be undertaken for increasing the production and productivity of rice crop. Supply of high yielding certified seeds to achieve potential yield of rice crops and the supply of nursery establishment materials viz., tarpaulin, planting machine, power tiller, power sprayers and rotavators will enhance the rice production.

Due to shortage of farm workers, farmers are not in a position to undertake various field operations in time. Hence, modernization of agriculture through agricultural mechanization is inevitable. Availability of farm power coupled with efficient and judicious use of inputs and farm implements/machinery would enable efficient utilization of various inputs such as seeds, fertilizers, plant protection chemicals and water in rice cultivation. Thus the overall goal will be to increase the yield of rice crop up to 6-7 tonnes/ha through the interventions like use of high yielding variety seeds, well maintained nursery and farm machineries.

Project components

- Promotion of SRI in all blocks
- Distribution of MN mixture, bio-fertilizer, zinc sulphate, herbicides and protrays in all blocks
- Distribution of certified seeds and Polyvinyl coated tarpaulin in all blocks
- Certified seed production and incentives for paddy machine planting in all blocks

Budget

The budget requirement for fulfilling the various interventions is ₹ 2745.92 lakh. The details of budget requirement for each intervention across the blocks are shown in Table 4.1.

Expected outcome

Introduction and promotion of SRI with supply of quality seeds of certified varieties will certainly increase the production and productivity. Reduction in cost of cultivation of crops due to supply of fertilizers and plant protection chemicals at a cost lower than market price. Assured supply of fertilizers and plant protection chemicals even in the condition of shortage of supply in market.

Implementing agency

The projects will be implemented by the Department of Agriculture. The progress of work will be monitored by Director of Agriculture at State level and Joint Director of Agriculture at district level.

Table 4.1 Budget Requirement for Paddy

(₹ in lakhs)

Sl. No	Interventions	Unit	Unit Cost (in Rs.)	Block Covered *(B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Promotion of SRI	Ha	15000	All Blocks	520	78.00	548	82.20	602	90.30	694	104.10	832	124.80	3196	479.40
2	Distribution of High Yielding Varieties	MT	35000	All Blocks	120	42.00	128	44.80	140	49.00	160	56.00	192	67.20	740	259.00
3	seed production - Certified class	MT	26000	All Blocks	120	31.20	128	33.28	140	36.40	160	41.60	192	49.92	740	192.40
4	Incentives for paddy machine planting	Ha	10000	All Blocks	2100	210.00	2206	220.60	2426	242.60	2792	279.20	3350	335.00	12874	1287.40
5	Distribution of Portray	No	80	All Blocks	20800	16.64	21840	17.47	24024	19.22	27628	22.10	33154	26.52	127446	101.96
6	Distribution of MN mixture/ Copper Sulphate	Ha	1000	All Blocks	700	7.00	736	7.36	810	8.10	932	9.32	1118	11.18	4296	42.96
7	Distribution of biofertilizer / PPFM / bioinputs / plant nutrient mobilizing bacteria	Ha	300	All Blocks	700	2.10	736	2.21	810	2.43	932	2.80	1118	3.35	4296	12.89
8	Distribution of Zinc sulphate (Soil application & foliar)	Ha	1000	All Blocks	1900	19.00	1996	19.96	2196	21.96	2526	25.26	3030	30.30	11648	116.48
9	Distribution of herbicides	Ha	1000	All Blocks	1900	19.00	1996	19.96	2196	21.96	2526	25.26	3030	30.30	11648	116.48
10	Polyvinyl coated Tarpaulin (6m x 5m)	No	2000	All Blocks	300	6.00	318	6.36	348	6.96	402	8.04	480	9.60	1848	36.96
11	Demonstration of drip irrigation	ha	100000	All Blocks	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
	Total					**450.94**		**474.20**		**518.93**		**593.68**		**708.18**		**2745.92**

* B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.2. Enhancing the millets productivity

In Ariyalur district, millets are grown in an area of 17,960 ha and the yield is around 3.5 tonnes/ha for Bajra, 2.6 tonnes/ha for Varagu, 3 tonnes/ha for Ragi and 5.3 tonnes/ha for Maize. The improved packages of practices and farmer's training have to be taken for increasing the millets production and productivity. There is a scope to increase the production and productivity of millets by providing healthy seeds, micronutrients and bio-fertilizers. The farmers are using only local varieties and yield obtained is very low. Use of high yielding varieties Ragi (Co14, paiyur2), Thenai (Co7), Bajra (Co4, Paiyur2), Samai (Co9) along with adoption of package of practices would increase crop production and productivity. Thus the overall objective is to increase the yield of Bajra, Varagu, Ragi around 4-5 tonnes/ha and 6 tonnes/ha for Maize through the use of high yielding varieties along with the adoption of the recommended practices.

Project components

- Demonstration (supply of seed, seed treatment & MN mixture) in all blocks
- Distribution of biofertilizers Liquid / Carrier in all blocks
- Distribution of herbicides in all blocks
- Drip irrigation for Maize in all blocks

Budget

The total cost of the project for five years works to ₹ 400.91 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.2.

Expected outcome

There is a scope to increase the area under millets in Ariyalur district. By distributing improved varieties / hybrids of millets will certainly improve the living standard of the farmers of this tract. Supply of quality seeds of newly released varieties will certainly increase the production and productivity.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.2 Budget Requirement for Millets in Ariyalur District

(₹. in lakhs)

Sl. No.	Interventions	Unit	Unit Cost (in Rs.)	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Sorghum															
1	Distribution of biofertilizers Liquid / Carrier	Ha	0.0300	All Blocks	100	0.30	106	0.32	116	0.35	132	0.40	158	0.47	612	1.84
2	Distribution of MN mixture (12.5kg/ha)	Ha	0.0700	All Blocks	100	0.70	106	0.74	116	0.81	132	0.92	158	1.11	612	4.28
	Total					**1.00**		**1.06**		**1.16**		**1.32**		**1.58**		**6.12**
	Maize															
3	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.5000	All Blocks	500	25.00	525	26.25	580	29.00	665	33.25	800	40.00	3070	153.50
4	Distribution of biofertilizers Liquid / Carrier	Ha	0.0300	All Blocks	230	0.69	244	0.73	267	0.80	308	0.92	368	1.10	1417	4.25
5	Distribution of herbicides	Ha	0.0800	All Blocks	850	6.80	893	7.14	983	7.86	1131	9.05	1357	10.86	5214	41.71
6	Drip irrigation for maize	Ha	10.0000	All Blocks	30	30.00	31	31.00	36	36.00	42	42.00	49	49.00	188	188.00
	Total					**62.49**		**65.13**		**73.67**		**85.22**		**100.96**		**387.46**
	Bajra															
7	Distribution of biofertilizers Liquid / Carrier	Ha	0.0300	All Blocks	120	0.36	127	0.38	139	0.42	158	0.47	189	0.57	733	2.20
8	Distribution of MN mixture (12.5kg/ha)	Ha	0.0700	All Blocks	120	0.84	127	0.89	139	0.97	158	1.11	189	1.32	733	5.13
	Total					**1.20**		**1.27**		**1.39**		**1.58**		**1.89**		**7.33**
	Grand Total					**64.69**		**67.46**		**76.22**		**88.12**		**104.43**		**400.91**

* B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.3. Enhancing the pulses productivity

Increasing pulses production is one of the agenda for Ariyalur district. In Ariyalur district, pulses are grown in an area of 4019 ha and the yield is around 500-1000 kg/ha. Black gram is the major pulse in Ariyalur and yield is around 850 kg/ha. The improved varieties as well as the packages of practices developed have to be undertaken for increasing the pulses production and productivity. Seeds form the crucial input for the cultivation of crops and their quantity. By delivering improved seed varieties of pulses will certainly improve the living standard of the farmers of this tract. Awareness creation through campaigns, demonstrations and motivating the farming community through the supply of critical inputs has to be done. Thus the overall goal is to increase the yield by 5-10 per cent through the project components like use of high yielding varieties, distribution of machineries along with the adoption of the recommended practices.

Project components

- Production of foundation/certified pulses seeds.
- Distribution of certified seeds, micro nutrients, weedicide and DAP Spray
- Distribution of biofertilizer (Rhizobium + Phosphobacteria) - liquid / carrier in all blocks
- Cropping system based demonstration in Andimadam, Ariyalur, T.Pazhur and Sendhurai block
- Pure crop demonstration - black gram and green gram in Jayankondam and Sendhurai block

Budget

The total budget for the proposed intervention is ₹ 924.36 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.3.

Expected outcome

The timely supply of seed material of ruling varieties and distribution of machineries through Department of Agriculture at block level will facilitate the farmers to adopt high yielding varieties in turn to get higher income.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.3 Budget Requirement for Pulses

(₹. in lakhs)

Sl. No	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Production of Foundation/ Certified pulses seeds	MT	86000	All Blocks	31	26.66	31	26.66	36	30.96	42	36.12	49	42.14	189	162.54
2	Distribution of Certified Seeds	MT	100000	All Blocks	31	31.00	31	31.00	36	36.00	42	42.00	49	49.00	189	189.00
3	Distribution of Biofertilizer/ Organic packages (Rhizobium + Phosphobacteria) - Liquid / Carrier	Ha	600	All Blocks	550	3.30	578	3.47	638	3.83	732	4.39	880	5.28	3378	20.27
4	Distribution of Micro Nutrients(5 kgs/ Ha)	Ha	350	All Blocks	550	1.93	578	2.02	638	2.23	732	2.56	880	3.08	3378	11.82
5	DAP Spray	Ha	700	All Blocks	1500	10.50	1575	11.03	1734	12.14	1995	13.97	2394	16.76	9198	64.39
6	Cropping system based demonstration	Ha	12500	B6,B1,B5,B2	400	50.00	420	52.50	464	58.00	532	66.50	640	80.00	2456	307.00
7	Distribution of weedicide	Ha	1000	All Blocks	1500	15.00	1575	15.75	1734	17.34	1995	19.95	2394	23.94	9198	91.98
8	Pure crop demonstration - Black gram and green gram	Ha	6300	B4,B3	200	12.60	210	13.23	232	14.62	266	16.76	320	20.16	1228	77.36
	Total					**150.99**		**155.66**		**175.12**		**202.25**		**240.36**		**924.36**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.4. Enhancing the oilseeds productivity

Oilseeds are the major crop in the dry tracts of the Ariyalur district. Groundnut is the major oilseed crop in the district. In Ariyalur district oilseeds are grown in an area of 11,470 ha and the yield of groundnut is 4.2 tonnes/ha. Hence, the introduction of recently developed high yielding varieties and hybrids with improved package of practices would add profit. By developing improved varieties / hybrids of oilseeds and supplying of processing equipment will certainly improve the living standard of the farmers and also the yield of oil seeds upto 10 per cent at this tract.

Project components

- Certified seed production in all blocks
- Distribution of certified seeds, MN mixture, gypsum and liquid biofertilizer in all blocks
- Application of herbicide, bio pesticide/fungicide in all blocks
- Bund cropping - Castor for Groundnut in T.Palur, Sendhurai and Ariyalur block
- CBD - Groundnut in all blocks

Budget

The total cost of the project for five years works to ₹. 971.56 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.4.

Expected outcome

The supply of good quality seeds, planting materials, and distribution of micronutrients, gypsum and bio-fertilizers will enhance the production and productivity of oilseeds.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.4. Budget Requirement for Oilseeds

(₹. in lakhs)

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Bio pesticide/fungicide	Ha	1000	All Blocks	900	9.00	945	9.45	1041	10.41	1197	11.97	1437	14.37	5520	55.20
2	Compact Block Demonstration - Groundnut	Ha	20000	All Blocks	80	16.00	86	17.20	94	18.80	108	21.60	130	26.00	498	99.60
3	Herbicide	Ha	1000	All Blocks	900	9.00	945	9.45	1041	10.41	1197	11.97	1437	14.37	5520	55.20
	GROUNDNUT															
4	Application of Gypsum to Groundnut Crop	Ha	1600	All Blocks	1200	19.20	1260	20.16	1386	22.18	1596	25.54	1914	30.62	7356	117.70
5	Castor as Bund crop	Ha	600	B5,B4,B2	60	0.36	63	0.38	69	0.41	78	0.47	93	0.56	363	2.18
6	Distribution of Micro Nutrient Mixture	Ha	1500	All Blocks	300	4.50	318	4.77	348	5.22	402	6.03	480	7.20	1848	27.72
7	Distribution of Certified seeds	Mt	84000	All Blocks	60	50.40	66	55.44	72	60.48	84	70.56	102	85.68	384	322.56
8	Distribution of Liquid Biofertilizer	Ha	600	All Blocks	300	1.80	318	1.91	348	2.09	402	2.41	480	2.88	1848	11.09
9	Strengthening seed chain by foundation seed production	Mt	73000	All Blocks	60	43.80	66	48.18	72	52.56	84	61.32	102	74.46	384	280.32
	Grand Total					**154.06**		**166.94**		**182.56**		**211.87**		**256.14**		**971.56**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayakondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.5. Enhancing the oil palm productivity

India is the largest consumer of palm oil in the world, consuming around 17 per cent of total world consumption. India is also the largest importer of palm oil amounting to 44 per cent of world imports. Palm Oil contains an equal proportion of saturated and unsaturated fatty acid containing about 40 per cent oleic acid, 10 per cent linoleic acid, 44 per cent palmitic acid and 5 per cent stearic acid. The unprocessed palm oil is used for cooking in various countries. Palm Oil is a very rich source of Beta Carotene, an important source of Vitamin A and it contains Tecopherols and Tocotrienols, a natural source of Vitamin E. By virtue of the high vitamin contents the Red Palm Oil is a nature's gift for the human beings. In view of the rich content of vitamins, palm oil can be utilized for the preparation of cosmetics as well there is a need to promote oil palm by the way of area expansion and better cultivation practices, it is equally important to focus on innovative growth strategies through National Mission on Oilseeds and Oil Palm (NMOOP) has been launched in which Mini Mission-II (MM-II) is dedicated to oil palm area expansion and productivity increases. MM-II of NMOOP and MM-III of NMOOP is being implemented in 13 States *viz,* Tamil Nadu, Andhra Pradesh, Assam, Arunachal Pradesh, Chhattisgarh, Gujarat, Karnataka, Kerala, Mizoram, Nagaland, Odisha, Telangana, and West Bengal.

Project components

- Oil palm area expansion programme in Ariyalur, Jayankondam, T.Palur and Thirumanur blocks
- Inputs for intercropping in Ariyalur, Jayankondam, T.Palur and Thirumanur blocks
- Supply of diesel pumps in Ariyalur, Jayankondam, T.Palur and Thirumanur blocks
- Supply of aluminium ladder, wire mesh and oil palm cutter in Ariyalur, Jayankondam, T.Palur and Thirumanur blocks

Budget

It is proposed to incur ₹ 21.76 Lakhs over a period of five years

Expected outcome

The expected outcome of the project will result in an increase in the production of oil palm for producing oil and major supply of quality raw material to the oilseed industry which will improve the income of the farmers and requirement of oilseeds.

Implementing agency

Department of Agriculture will implement the project

Table 4.5. Budget Requirement for Oil palm

(₹. in lakhs)

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	NMOOP - Mini Mission - II (Oilpalm)															
1	Cultivation maintenance	Ha	1. 0000	B3,B5,B2,B6	12	1.20	12	1.20	12	1.20	12	1.20	16	1.60	64	6.40
2	Inputs for Intercropping	Ha	1.0000	B3,B5,B2,B6	12	1.20	12	1.20	12	1.20	12	1.20	16	1.60	64	6.40
3	Oilpalm Area Expansion Programme	Ha	1.4000	B3,B5,B2,B6	12	1.68	12	1.68	12	1.68	12	1.68	16	2.24	64	8.96
	Grand Total					**4.08**		**4.08**		**4.08**		**4.08**		**5.44**		**21.76**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.6. Enhancing the cotton productivity

Cotton is one of the principal crops of India and plays a vital role in the country's economic growth by providing substantial employment and making significant contributions to export earnings. The growth and modernization of the spinning industry has led to a substantial growth in cotton consumption. Cotton crops are grown only in an area of 7064 ha and the yield of lint is around 570kg/ha in Ariyalur district. Sendurai, T.Palur and Thirumanur are the major cotton growing blocks in Ariyalur district. The lint yield of cotton will be increased up to 600-700 kg/ha by the adoption of improved package of practices by the farmers with the use of quality seeds, water management, marketing infrastructure and processing. Thus the overall goal is to increase the yield and production and productivity of cotton crop by adoption of improved package of practices.

Project components

- ✓ Distribution of MN mixture and biofertilizer in Ariyalur, Sendurai, T.Palur and Thirumanur block
- ✓ Distribution of plant protection chemicals in Ariyalur, Sendurai, T.Palur and Thirumanur block
- ✓ Application of weedicide in Ariyalur, Sendurai, T.Palur and Thirumanur block

Budget

The total cost of the project for five years works to ₹. 278.39 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.6.

Expected outcome

The timely supply of inputs like MN mixture, bio fertilizer, plant protection chemicals, weedicide and machineries will certainly increase the production and productivity of cotton.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.6 Budget Requirement for Cotton in Ariyalur District **(₹ in lakhs)**

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Application of weedicide	Ha	0.3000	B6,B5,B4,B2	1400	42.00	1470	44.10	1618	48.54	1862	55.86	2234	67.02	8584	257.52
2	Distribution of bio fertilizer	Ha	0.0300	B6,B5,B4,B2	300	0.90	316	0.95	348	1.04	400	1.20	480	1.44	1844	5.53
3	Distribution of MN Mixture	Ha	0.1000	B6,B5,B4,B2	50	0.50	53	0.53	58	0.58	67	0.67	80	0.80	308	3.08
4	Distribution of PP chemicals	Ha	0.1000	B6,B5,B4,B2	200	2.00	210	2.10	231	2.31	266	2.66	319	3.19	1226	12.26
	Total					**45.40**		**47.68**		**52.47**		**60.39**		**72.45**		**278.39**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.7. Enhancing the Sugarcane productivity

Sugarcane is one of the important cash crop and a perfect gift to mankind. The demand for Sugarcane in the country is mainly for the purpose for which they are utilized in the various form for consumption. In Ariyalur district Sugarcane was grown in an area of 8684 ha and the yield was around 113 tonnes/ha. Increasing the productivity, reducing the cost of production, integrated farming, farm level processing, proper value addition, product diversification and by-product utilization coupled with effective marketing strategies and market promotional activities can definitely make the Sugarcane industry more competitive and sustainable in Ariyalur district. Distribution of micronutrient mixture, bio-fertilizers and trash mulching techniques will enhance the production and productivity of Sugarcane. Implementation of interventions will certainly increase the yield of Sugarcane up to 5-10 per cent.

Project components

- Sustainable Sugarcane Initiative (Shade net establishment and distribution of single bud seedling) in all blocks
- Distribution of micro nutrient mixture, biofertilizer and weedicide in all blocks
- Micro-irrigation – drip in all blocks
- Demonstration on intercropping in Sugarcane in all blocks except Thirumanur block

Budget

The total cost of the project for five years works to ₹ 898.58 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.7.

Expected outcome

Fertility status of the soil will be improved by application of micronutrient mixture and biofertilizers. Hence assurance of nutritional sustainability will be kept. The timely supply of inputs will increase the production and productivity of Sugarcane.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.7 Budget Requirement for Sugarcane in Ariyalur District **(₹. in lakhs)**

Sl. No	Sugarcane	Unit	Unit cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Distribution of bio fertilizer (Ha)	Ha	0.006	All blocks	300	1.80	318	1.91	348	2.09	402	2.41	480	2.88	1848	11.09
2	Distribution. of weedicide (Ha)	Ha	0.01	All blocks	1100	11.00	1157	11.57	1274	12.74	1464	14.64	1757	17.57	6752	67.52
3	Distribution of Micro Nutrient Mixture	Ha	0.02	All blocks	300	6.00	318	6.36	348	6.96	402	8.04	480	9.60	1848	36.96
4	Micro irrigation - Drip (1.2x0.6)	Ha	1.24	All blocks	60	74.40	66	81.84	72	89.28	84	104.16	102	126.48	384	476.16
	Sustainable Sugarcane Initiative (SSI)															
5	A. Establishment of Shade net	Nos	1.5	All blocks	54	81.00	0	0.00	0	0.00	0	0.00	0	0.00	54	81.00
6	B. Distribution of Single Bud Seedling	Ha	0.225	All blocks	890	200.25	0	0.00	0	0.00	0	0.00	0	0.00	890	200.25
7	Demonstration on intercropping in Sugarcane	Ha	0.08	All Blocks Except B6	50	4.00	55	4.40	60	4.80	70	5.60	85	6.80	320	25.60
	Grand Total					**378.45**		**106.08**		**115.87**		**134.85**		**163.33**		**898.58**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayakondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.8. Enhancing the Coconut productivity

Coconut was grown in an area of 331 ha in Ariyalur district, particularly in Andimadam block and the yield is 5136 nuts/ha. Coconut is propagated by nuts and planted in dry areas. The cultural operations are very difficult because of its tall growing nature. Hence, the introduction of high yielding hybrids (Tall × Dwarf) would add profit and increase the numbers and productivity of Coconut trees. There is also scope for increasing the area under Coconut in Ariyalur district by developing improved tall varieties or hybrids. Thus the overall objective is to enhance the Coconut area and their productivity through the use of new hybrids.

Project components

- ✓ Distribution of T × D hybrid seedlings and tall seedlings for all blocks
- ✓ Collective farming - corpus fund release for Farmers Producers Group (FPG) for all blocks

Budget

The total cost of the project for five years works to ₹ 812.87 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.8.

Expected outcome

The implementation of the project will result in increase of Coconut planting. This will help the Coconut growing farmers to increase the area and productivity. This will help the employment opportunity and income of the farming community.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.8 Budget Requirement for Coconut

(₹. in lakhs)

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Distribution of T x D hybrid seedlings	No	0.0060	All Blocks	2100	1.26	2205	1.32	2427	1.46	2790	1.67	3348	2.01	12870	7.72
2	Distribution of Tall Seedlings	No	0.0040	All Blocks	2100	0.84	2205	0.88	2427	0.97	2790	1.12	3348	1.34	12870	5.15
3	Corpus fund release for FPG (2000 nos.)	Nos.	50.0000	All Blocks	160	800.00	0	0.00	0	0.00	0	0.00	0	0.00	160	800.00
	Grand Total					**802.10**		**2.21**		**2.43**		**2.79**		**3.35**		**812.87**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.9. Enhancing the livelihood of farmers through training

Agricultural extension service is being provided at the Block level and grassroot level under the Extension Reforms scheme being implemented. The contact with extension functionaryof the State Government in Agriculture and allied departments will clarify their queries and provide information about any Programme / Scheme and appropriate technologies. The new information that farmers gain through these training sessions makes their daily farming activities much easier. It also leads to an increase in productivity and farm income in the long run.

Project components

- State level and interstate level training programmes to farmers for Integrated Farming System (IFS), cultivation of major and minor millets and pulses, moisture conservation practices, in all blocks.
- Exposure visits in all blocks.

Budget

It is proposed to incur ₹ 105.00 Lakhs over a period of five years (Table 4.9) with the finance facilities under the NADP and other sources.

Expected outcome

The project will result in better income to farmers. They may learn many things to update their knowledge of cultivation if they attend this programme which will further improve the income of the farmers.

Implementing agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.9 Budget Requirement for Training

(₹. in lakhs)

Sl. No	Cafeteria of Activities	Unit	Unit cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	District Level															
	Training of Farmers															
1	Inter State Training of Farmers	Nos.	1.25	All Blocks	6	7.50	6	7.50	6	7.50	6	7.50	6	7.50	30	37.50
2	Within the State training of Farmers	Nos.	1.20	All Blocks	6	7.20	6	7.20	6	7.20	6	7.20	6	7.20	30	36.00
	Training of Farmers with in the district															
3	IFS	Nos.	0.10	All Blocks	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
4	Major & Minor Millets	Nos.	0.10	All Blocks	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
5	Moisture conservation practices	Nos.	0.10	All Blocks	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
6	Organic cultivation practices	Nos.	0.10	All Blocks	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
7	Pulses	Nos.	0.10	All Blocks	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
	Exposure visit of Farmers															
8	Within State Exposure visit	Nos.	0.40	All Blocks	6	2.40	6	2.40	6	2.40	6	2.40	6	2.40	30	12.00
9	Within the district exposure visit	Nos.	0.15	All Blocks	6	0.90	6	0.90	6	0.90	6	0.90	6	0.90	30	4.50
	Grand Total					**21.00**		**21.00**		**21.00**		**21.00**		**21.00**		**105.00**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.10. Infrastructure Development

Quality control is the process of checking the quality of the material against the standard set by the organizations and if the material does not match with the standards, then such material is said to be substandard. Quality control laboratories are being established by the Government with an intention to supply quality inputs *viz.,* seed, fertilizers and pesticide and services like soil testing to the farmers. Storage Godown, Seed Processing Unit Machineries, Construction of UzhavarMaiyam/Farmers Hub, IAEC and Sub-AEC, Strengthening of STL, MSTL, FCL, CCL, BFQCL, PTL, Organic Fertlizer Testing Lab and Bio-fertilizer production unit operating in the State are doing yeomen services to the farming community and public by providing technical advices and expertise for the holistic development of the farmers. They also prioritize their actions so as to ensuring food and nutritional security. However, they are not endeavored with adequate infrastructure, which is absolutely essential for growth and development. Strengthening the existing and creating new assets/amenities would bring profound influence on the constructive and technical services effectively.

Project components

- Establishment of additional seed godown and bag closure in all blocks
- Distribution of Dunnage, electronic platform balance, seed rack and moisture meter in all blocks

Budget

It is proposed to incur ₹. 624.25 Lakhs over a period of five years (Table 4.10) with the finance facilities under the NADP and other sources.

Expected outcome

The implementation of the above project will result in better activities which in turn results in better infrastructure facilities and higher agricultural production.

Implementing agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.10 Budget Requirement for Infrastructure Development

(₹. in lakhs)

Sl. No	Components	Unit	Unit Cost (in Rs.)	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Tonnage	Nos.	7500	All Blocks	6	0.45	6	0.45	6	0.45	6	0.45	6	0.45	30	2.25
2	Moisture meter	Nos.	25000	All Blocks	6	1.50	6	1.50	6	1.50	6	1.50	6	1.50	30	7.50
3	Bag closure	Nos.	10000	All Blocks	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
4	Electronic platform balance	Nos.	150000	All Blocks	6	9.00	6	9.00	6	9.00	6	9.00	6	9.00	30	45.00
5	Seed rack	Nos.	30000	All Blocks	6	1.80	6	1.80	6	1.80	6	1.80	6	1.80	30	9.00
6	Tarpaulin	Nos.	25000	All Blocks	6	1.50	6	1.50	6	1.50	6	1.50	6	1.50	30	7.50
7	Strengthening of training institute / nursery / FTC / KVK	Nos.	50000000	All Blocks	0	0.00	1	500.00	0	0.00	0	0.00	0	0.00	0	500.00
8	Infrastructure for empowerment of coconut nurseries	Nos.	5000000	All Blocks	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	0	50.00
	Grand total					**64.85**		**514.85**		**14.85**		**14.85**		**14.85**		**624.25**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.11. Soil Health Management

It has been observed that the average productivity of major crops in Tamil Nadu is only about 60 per cent of the potential yield. The reason may be due to decline in organic matter content of the soil leads to low soil fertility. The availability of organic manures to farmers has become scanty and costly. The importance of FYM/Green manuring in maintaining the organic matter status of the soil has to be educated to the farmers. The total production of bio-fertilizers has to be stepped up to meet the growing demand. Similarly, crop based micronutrient mixtures need to be promoted. Soil amendments *viz.,* gypsum and lime have to be provided at a subsidized rate as a reclamation measure for the cultivable acid and alkali soils. Vermicompost production may be promoted among the farming community. In order to start Vermi compost unit besides training on composting technologies earth worm cultures may be issued on subsidy basis.

Project component

- Green manuring in all blocks
- Establishment of permanent and HDPE vermicompost units in all blocks
- Distribution of soil health card in all blocks

Budget

Enhancing soil health by distributing enriched farm yard manure, micro-nutrient mixture, gypsum, bio-fertilizers, *etc.* is essential to maximize profitability. The overall budget to undertake the various interventions in Ariyalur district is ₹ 377.83 Lakhs (Table 4.11).

Expected outcome

Increase in soil organic matter content will improve the soil fertility status. The sustainable soil health management would promote the Agriculture production and productivity of the district in term will reflect the state and country.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.11 Budget Requirement for Soil Health Management

(₹. in lakhs)

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Permanent Vermi compost units	Cluster Nos.	5.0000	All Blocks	30	15.00	30	15.00	36	18.00	42	21.00	48	24.00	186	93.00
2	HDPE Vermi compost units	Kit Nos	1.2000	All Blocks	30	3.60	30	3.60	36	4.32	42	5.04	48	5.76	186	22.32
3	Green Manuring	Nos	0.4000	All Blocks	320	12.80	338	13.52	371	14.84	427	17.08	511	20.44	1967	78.68
4	Distribution of Soil Health Card	Ha	0.0300	All Blocks	10000	30.00	10500	31.50	11551	34.65	13284	39.85	15941	47.82	61276	183.83
	Total					**61.40**		**63.62**		**71.81**		**82.97**		**98.02**		**377.83**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.12. Rainfed Area Development

Rainfed areas account for nearly 57 per cent of the agricultural land in India. Rainfed areas if managed properly have the potential to contribute a larger share in the food grain production. These high potential rainfed areas provide opportunities for faster agricultural growth compared to irrigated areas that have reached a plateau in-fact the potential is such that there is more opportunity for faster agricultural growth here than in irrigated areas. With proper management, rainfed areas have the potential of contributing a larger share for food grain production. Increasing agricultural productivity of rainfed areas in a sustainable manner by adopting appropriate farming system based approaches through restoration of confidence in rainfed agriculture by creating sustained employment opportunities through improved on-farm technologies and cultivation practices. Livelihood support to farmers of rainfed areas through poverty reduction.

Project components

- ✓ Milch Animal (1 no) + 1 ha cropping system with inter crop & border plantation like castor/sesbania*etc*. in Andimadam, Ariyalur, Sendurai and Thirumanur blocks
- ✓ Promotion of Farmers club for Sustainable Dryland Agriculture in all the blocks

Budget

It is proposed to incur ₹ 2370.10 Lakhs over a period of five years (Table 4.12) with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result in an increase in the production of the rainfed crops which will improve the income of the farmers.

Implementing agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.12. Budget Requirement for Rainfed Area Development **(₹. in lakhs)**

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Milch Animal (1 no) + 1 ha Cropping system with inter crop & border plantation like castor/sesbania etc. @ Rs.27500/ as subsidy per Unit	Ha	5.5000	B6, B4, B1, B2	400	220.00	420	231.00	464	255.20	532	292.60	640	352.00	2456	1350.80
2	Promotion of Farmers club for Sustainable Dryland Agriculture	Cluster	849.4150	All Blocks	12	1019.30	0	0.00	0	0.00	0	0.00	0	0.00	12	1019.30
	Total					**1239.30**		**231.00**		**255.20**		**292.60**		**352.00**		**2370.10**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.13. Farm Mechanization

Agricultural mechanization is the need of the hour to meet out the growing shortage of labour workforce in Agriculture. It has been identified as one of the critical inputs for increasing production in time. The labour intensive crops need high man power requirement, which is fast depleting and posing a big challenge to crop productivity. Agricultural labour wages are increasing at an alarming rate in Tamil Nadu resulting in shifting from labour intensive to mechanization intensive techniques. The farm machinery for land preparations, land development, seeding, planting, transplanting, weeding and intercultural operations, harvesting and threshing which are predominantly used in other parts of the country / other countries are proposed for introduction in the farmers field of Ariyalur district.

Project component

- Distribution of tractor and power tiller in all the blocks
- Distribution of rotavator in all the blocks
- Distribution of pump set and PVC pipes to carry irrigation water from source to field in all the blocks
- Distribution of power operated sprayers in all the blocks
- Distribution of tarpaulins in all the blocks

Budget

Agricultural mechanization programs are proposed to implement in a big way to increase the agricultural production and to popularize the agricultural machinery among the farmers of this district with a budget of ₹ 3001.44 Lakhs (Table 4.13).

Expected outcome

Distribution of farm machinery / implements to farmers will increase the farm power. All the proposed agricultural machinery / implements will be put into use by the farmers. The acute agricultural labour scarcity will be reduced. The benefit of agricultural mechanization is to be extended to all categories of farmers with due consideration to small, marginal, scheduled caste, scheduled tribes and women farmers.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.13 Budget Requirement for Farm Mechanization **(₹ in lakhs)**

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Distribution of Power tiller	Nos	15.0000	All Blocks	150	225.00	156	234.00	174	261.00	198	297.00	240	360.00	918	1377.00
2	Distribution of Pump set	Nos	3.0000	All Blocks	30	9.00	30	9.00	36	10.80	42	12.60	48	14.40	186	55.80
3	Distribution of Rotavator	Nos	8.0000	All Blocks	90	72.00	96	76.80	108	86.40	126	100.80	150	120.00	570	456.00
4	Distribution of Tarpaulins	Nos	0.8000	All Blocks	300	24.00	318	25.44	348	27.84	402	32.16	480	38.40	1848	147.84
5	Distribution of Tractor	Nos	60.0000	All Blocks	6	36.00	6	36.00	6	36.00	6	36.00	6	36.00	30	180.00
6	Power operated sprayer	Nos.	0.8000	All Blocks	90	7.20	96	7.68	108	8.64	126	10.08	150	12.00	570	45.60
7	PVC Pipes to carry Irrigation water from source to field	Unit	4.0000	All Blocks	300	120.00	318	127.20	348	139.20	402	160.80	480	192.00	1848	739.20
	Total					**493.20**		**516.12**		**569.88**		**649.44**		**772.80**		**3001.44**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.1.14. Agricultural Information Technology

Agriculture is a major sector which is vital for the survival of modern man. The produce from agriculture drives trade from one country to another, brings income for farmers, makes productive use of otherwise idle land, and brings food on the table. It is such an important part of everyone's daily life, although it may not be seen as a direct factor since the produce goes a long way before reaching the hands of everyone who benefits from it. Because of its importance to society, it's must to evolve with the times and adjust to meet the needs of modern people. By adapting and making use of Information Technologyhelps to improve agricultural progress, everyone benefits from the union of these sectors.

In the context of agriculture, the potential of Information Technology (IT) can be assessed broadly under two heads: (a) as a tool for direct contribution to agricultural productivity and (b) as an indirect tool for empowering farmers to take informed and quality decisions which will have positive impact on the way agriculture and allied activities are conducted. The indirect benefits of IT in empowering farmer are significant and remain to be exploited. The farmer urgently requires timely and reliable sources of information inputs for taking decisions. At present, the farmer depends on trickling down of decision inputs from conventional sources which are slow and unreliable. The changing environment faced by farmers makes information not merely useful, but necessary to remain competitive.

Components include input devices, output devices, processors, storage devices, software, networking devices, transmission media and other accessories in all blocks

Budget

It is proposed to incur ₹ 41.70 Lakhs over a period of five years (Table 4.14) with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result in an increase in the adoption of technologies for production of the crops which will improve the income of the farmers

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.14 Budget Requirement for Information Technology **(₹. in lakhs)**

Sl. No	Components	Unit	Unit Cost	*Block Covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Printer cum Scanner	Nos	2.0000	All Blocks	6	1.20	0	0.00	0	0.00	0	0.00	0	0.00	6	1.20
2	UPS and Electrical Accessories	Nos	3.5000	All Blocks	6	2.10	0	0.00	0	0.00	0	0.00	0	0.00	6	2.10
3	Xerox machine	Nos	7.5000	All Blocks	6	4.50	0	0.00	0	0.00	0	0.00	0	0.00	6	4.50
4	Laptop/Desktop	Nos	5.0000	All Blocks	6	3.00	0	0.00	0	0.00	0	0.00	0	0.00	6	3.00
5	Anti -virus software	Nos	0.2500	All Blocks	6	0.15	0	0.00	0	0.00	0	0.00	0	0.00	6	0.15
6	Television	Nos	10.0000	All Blocks	6	6.00	0	0.00	0	0.00	0	0.00	0	0.00	6	6.00
7	Colour printer	Nos	1.5000	All Blocks	6	0.90	0	0.00	0	0.00	0	0.00	0	0.00	6	0.90
8	4G Internet - Dongle	Nos	0.2500	All Blocks	6	0.15	0	0.00	0	0.00	0	0.00	0	0.00	6	0.15
9	Equipments for Documentation															
	Handycam	Nos	3.0000	All Blocks	6	1.80	0	0.00	0	0.00	0	0.00	0	0.00	6	1.80
	Camera	Nos	2.5000	All Blocks	6	1.50	0	0.00	0	0.00	0	0.00	0	0.00	6	1.50
	GPS instrument	Nos	2.0000	All Blocks	6	1.20	0	0.00	0	0.00	0	0.00	0	0.00	6	1.20
	Android mobile	Nos	1.5000	All Blocks	6	0.90	0	0.00	0	0.00	0	0.00	0	0.00	6	0.90
	External Hard disk	Nos	0.5000	All Blocks	6	0.30	0	0.00	0	0.00	0	0.00	0	0.00	6	0.30
10	Audio - visual Aids	Nos	15.0000	All Blocks	6	9.00	0	0.00	0	0.00	0	0.00	0	0.00	6	9.00
	LCD projector	Nos	7.5000	All Blocks	6	4.50	0	0.00	0	0.00	0	0.00	0	0.00	6	4.50
	pico Projector	Nos	3.5000	All Blocks	6	2.10	0	0.00	0	0.00	0	0.00	0	0.00	6	2.10
11	Air conditioner for computer room	Nos	4.0000	All Blocks	6	2.40	0	0.00	0	0.00	0	0.00	0	0.00	6	2.40
	Total					**41.70**		**0.00**		**0.00**		**0.00**		**0.00**		**41.70**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

Table 4.15 Consolidated Agriculture Budget for Ariyalur District

(₹ in lakhs)

Sl. No	Crops	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Paddy	450.94	474.20	518.93	593.68	708.18	2745.92
2	Millets	64.69	67.46	76.22	88.12	104.43	400.92
3	Pulses	150.99	155.66	175.12	202.25	240.36	924.38
4	Oilseeds	154.06	166.94	182.56	211.87	256.14	971.57
5	Oil palm	4.08	4.08	4.08	4.08	5.44	21.76
6	Cotton	45.40	47.68	52.47	60.39	72.45	278.39
7	Sugarcane	378.45	106.08	115.87	134.85	163.33	898.58
8	Coconut	802.10	2.21	2.43	2.79	3.35	812.88
9	Training	21.00	21.00	21.00	21.00	21.00	105.00
10	Infrastructure	64.85	514.85	14.85	14.85	14.85	624.25
11	Soil Health Management	61.40	63.62	71.81	82.97	98.02	377.82
12	Rainfed Area Development	1239.30	231.00	255.20	292.60	352.00	2370.10
13	Integrated Pest Management	0.00	0.00	0.00	0.00	0.00	0.00
14	Farm Mechanization	493.20	516.12	569.88	649.44	772.80	3001.44
15	Strengthening of State Farm	0.00	0.00	0.00	0.00	0.00	0.00
16	Agriculture Information Technology	41.70	0.00	0.00	0.00	0.00	41.70
	Total	**3972.16**	**2370.9**	**2060.42**	**2358.89**	**2812.35**	**13574.71**

4.2. Horticulture

4.2.1 Enhancing the productivity of horticultural crops

Horticulture plays a vital role in the food and nutritional security of the people as well as in earning foreign exchange through export of raw and value added horticultural crops. The farmers are ready to go in for the cultivation of horticultural crops which prove remunerative. The challenge lies in taking the technologies to 90 per cent of farmers who are small and marginal farmers. In all, horticulture crops are grown in 10.01 lakh hectares, of which vegetables, spices, plantation crops, flowers and medicinal plants are the major crops cultivated in the State. Totally, 86 horticultural crops are grown in the State which clearly indicates the crop diversity and also the possibility of augmenting the income of farmers. The major strategies suggested are as follows:

Area expansion of Horticultural crops

a. Fruit Crops

Today's changing food pattern enhances the area expansion under fruits. The preferable choices of fruits are Mango, Apple, Banana, Grapes, Orange, Guava, Pomegranate, Sapota *etc*. Fruits are rich in fiber which is very essential for the smooth movement of the digestive system. There are some fruits that give energy to body as they contain carbohydrates which are the main source of energy. Carbohydrates in fruits are mainly sugar which actually breaks down easily and make a quick source of energy. They also contain minerals, vitamins and nutrients that are useful for a healthy life. Considering the importance of fruits, the productivity can be increased by promotion of cultivation of fruit crops in the potential areas.

b. Vegetable crops

Vegetables are the store houses of most of the vitamins and minerals and also proteins. In order to ensure continuous supply of fresh vegetables to the burgeoning urban markets, it is absolutely necessary to create forward linkages from rural to urban areas. This will also ensure assured income to farmers in the rural areas adjoining the cities. Cultivation of vegetables, formation of farmer clusters, formation of farmers society, collection centers, reefer vans, retail outlets, mobile stores are the components to be promoted for increasing the productivity and marketing of vegetables.

c. Flower crops

The major flowers grown are Jasmine (Gundumalli, Mullai, Jathimalli) Rose, Crossandra, Chrysanthemum, Marigold, Tuberose, Nerium *etc.* Floriculture activity has evolved as a viable and profitable alternative with a potential to generate remunerative self-employment among small & marginal farmers. The flower crops require lots of manpower for picking, garlanding packing etc. This paves way for more employment opportunities and to generate more income for women work force. Keeping this in mind, promotion of more area under cultivation of traditional and cut flowers are planned for different flower crops.

d. Spice crops

Spice crops play a unique role in India's economy by improving the income of the rural people. Cultivation of spices is labor intensive so it can generate lot of employment opportunities for the rural population. The demand of Indian spice is very much in other countries. Hence production of spices has very much scope to meet that demand by huge production.

e. Plantation crops

Plantation crops are high value commercial crops of greater economic importance and play a vital role in our Indian economy. These crops help to conserve the soil and ecosystem. The crops include tea, coffee, rubber, cocoa, coconut, arecanut, oil palm, palmyrah, cashew, cinchona *etc*. So the promotion of cultivation of plantation crops in the potential districts will increase the economy of the farmer and also Indian economy.

f. Area expansion by Precision Farming Technology

By providing inputs like water soluble fertilizers, hybrid / high yielding vegetable seeds and plant protection chemicals, the area under annual crops like vegetables, flowers, spices, medicinal plants and one year long season crops like banana, tapioca, annual moringa and turmeric could be raised under precision farming technology.

g. Area expansion by high density planting

By adopting high density planting in Mango, Guava and Sapota, the area under fruit trees could be increased. This includes supply of pedigree planting materials, integrated nutrient management and integrated pest management value addition and export potential.

h. Area expansion by Normal Planting

Besides precision farming and high density planting, the area could be increased by normal planting as well by using pedigree planting materials in fruits, spices, flowers and plantation crops. Similarly, by extending support for the planting materials of high value vegetables, the protected cultivation of vegetable area could also be increased. Likewise, cultivation of cut flowers and filler foliage also need to be encouraged.

Rejuvenation of Old Orchards – Mango and Guava

In general, 40-45 years old Mango trees exhibit decline in fruit yield because of dense and overcrowded canopy. The trees do not get proper sunlight resulting in decreased production of shoots. New emerging shoots are weak and are unsuitable for flowering and fruiting. The population of insects and pests builds up and the incidence of diseases increases in such orchards. These unproductive trees can be converted into productive ones by pruning with the techniques developed. Similarly, a procedure to rejuvenate and restore the production potential of old unproductive and wilt affected Guava orchards has been developed, which employs pruning of branches at different periodicity and at different severities. Crowding and encroachment of guava trees with subsequent inefficient light utilization is an obvious problem with older orchards, if trees are not well managed. The internal bearing capacity of Guava trees also decreases with time, due to overshadowing of internal bearing wood.

Pollination support

Pollination of fruits, vegetables, spices and plantation crops would be enhanced through the establishment of bee hives and colonies.

Organic farming

Organic farming is an alternative agricultural system which originated early in the 20th Century in reaction to rapidly changing farming practices. It relies on fertilizers of organic origin such as compost, manure, green manure, and bone meal and places emphasis on techniques such as crop rotation, companion planting, biological pest control, mixed cropping and fostering of insect predators are encouraged. Since 1990, the market for organic food and other products has grown rapidly, reaching $63 billion worldwide in 2012. This demand has driven a similar increase in organically managed farmland that grew from 2001 to 2011 at a compounding rate of 8.9 per cent per annum. As of 2011, approximately 3.70 lakh hectares worldwide were practiced organic farming, representing approximately 0.9 per cent of total world farmland. Organic farming encourages crop

diversity. The science of agro ecology has revealed the benefits of polyculture (multiple crops in the same space), which is often employed in organic farming. Planting a variety of vegetable crops supports a wider range of beneficial insects, soil microorganisms, and other factors that add up to overall farm health. Crop diversity helps environments thrive and protects species from going extinct. The profitability of organic agriculture can be attributed to a number of factors. First, organic farmers do not rely on synthetic fertilizer and pesticide inputs, which can be costly. In addition, organic foods currently enjoy a price premium over conventionally produced foods, meaning that organic farmers can often get more for their yield. The price premium for organic food is an important factor in the economic viability of organic farming. Organic agriculture can contribute to ecologically sustainable, socio-economic development, especially in poorer countries. The application of organic principles enables employment of local resources (*e.g.,* local seed varieties, manure, *etc.*) and therefore cost-effectiveness. Local and international markets for organic products show tremendous growth prospects and offer creative producers and exporter's excellent opportunities to improve their income and living conditions.

Rainfed Area Development Programme (RADP)

Rainfed areas assume special significance in terms of ecology, agricultural productivity and livelihood for millions of rural households in India. To ensure agriculture growth in the rainfed areas, the Government of India launched a new scheme "Rainfed Area Development Programme (RADP)" in the year 2011-12 as a sub-scheme under Rashtriya Krishi Vikas Yojana (RKVY). It aims at improving quality of life of farmers especially, small and marginal farmers by offering a complete package of activities to maximize farm returns. RADP focuses on Integrated Farming System (IFS) for enhancing productivity and minimizing risks associated with climatic variabilities.

Special Interventions

a. Production Enhancement through Precision Farming

Farmers have experienced fruitful results of technology especially during the past five years. Hence further increase in the production of horticultural crops would be possible both by increasing area and productivity by adopting advanced technologies like precision farming, high density planting, protected cultivation, shade net nursery, integrated pest management and integrated nutrient management. Besides increasing infrastructure and mechanization facilities, productivity enhancement is considered by area expansion and resorting to high tech cultivation practices. Annual crops like vegetables, flowers, spices,

medicinal plants and one year long season crops like banana, tapioca, turmeric and annual moringa could be considered for expansion by precision farming technology and providing assistance for inputs like water soluble fertilizers, hybrid/ high yielding vegetable seeds, plant protection chemicals *etc.*, with subsidy.

b. Pandal / Trellis cultivation, Propping / Support / Staking

Pandal vegetables being short duration crops fit very well in the cropping system by offering viable option to the growers to get increased income per unit area. However, the cultivation of vegetable is too constrained due to high initial investment cost. With the objective of enhancing area under pandal vegetables and encouraging farmers to realize increased income, this project is proposed by popularizing high yielding/hybrid seed materials and dissemination of improved method of cultivation to farmers. It is proposed to cover at least 500 hectares in crops like bitter gourd, ribbed gourd, snake gourd, pandal beans *etc*.

c. Banana Bunch Sleeve

'Bunch care techniques' are to be followed in banana cultivation to achieve the best quality. Transparent polyethylene sleeves are recommended to cover the bunch immediately after opening of the last hand. Using of opaque polythene covers / sleeves gauge (during winter) and paper bags (to avoid chilling injury at frost conditions and sun scorch). The bunch will be free from insect bites, fungi, bacteria attacks and physical injuries. The bunch cover will also improve bunch appeal and maturity of bunch will be advanced by 7 to 10 days.

d. Agro Eco-System Analysis (AESA) based IPM

The IPM has been evolving over the decades to address the deleterious impacts of synthetic chemical pesticides on environment ultimately affecting the interests of the farmers. The Economic Threshold Level (ETL) was the basis for several decades but in modern IPM (FAO 2002) emphasis is given to AESA where farmers take decisions based on larger range of field observations. Decision making in pest management requires a thorough analysis of the agro-ecosystem. Farmer has to learn how to observe the crop, how to analyze the field situation and how to make proper decisions for their crop management. This process is called the AESA. In AESA based IPM emphasis is given to natural enemies, plant compensation ability, abiotic factors and P:D ratio.

e. Control of coconut Red Palm weevil

Coconut is a perennial crop and longevity of the tree is about 50 to 70 years. The red palm weevil is a fatal enemy and less than 20 years coconut palm succumbs to severe damage when infected. Hence it is highly necessary to control the attack of red palm weevil pest on war footing. It is programmed to distribute 5,00,000 traps of ferrolure @ of five traps per ha for 1.00 lakh hectare with subsidy assistance of 50 per cent. The total cost of ferrolure for one ha is Rs.1625/-(@ Rs.325/ferrolurefor 5nos/ha).Hence, an assistance of Rs. 1625/ha is proposed for five ferrolure per Ha.

f. Promotion of Roof top Garden / Potager garden

The traditional kitchen garden, also known as a potager is a space separate from the rest of the residential garden *i.e.* the ornamental plants and lawn areas. Most vegetable gardens are still miniature versions of old family farm plots, but the kitchen garden is different not only in its history, but also its design. The kitchen garden may serve as the central feature of an ornamental, all-season landscape, or it may be little more than a humble vegetable plot. It is a source of herbs, vegetables and fruits, but it is often also a structured garden space with a design based on repetitive geometric patterns. The kitchen garden has year-round visual appeal and can incorporate permanent perennials or woody shrub plantings around (or among) the annuals. There are many types of vegetable gardens. The potager, a garden where vegetables, herbs and flowers are grown together, has become more popular than the more traditional rows or blocks. Some popular culinary herbs in temperate climates are to a large extent still the same as in the medieval period. Herbs often have multiple uses. For example, mint may be used for cooking, tea, and pest control.

g. Perimetro Vegetable Cluster Development Programme

Since production of vegetables is not in accordance with the market demand and the productivity of many vegetables is less than the potential yield, farmers are to be motivated to plan for cultivation of vegetables based on market demand. Market led production of vegetables need to be taken up to ensure continuous supply of vegetables to the market and to the grower to get increased return out of sale of produce. Hence, it is necessary to go in for the productivity enhancement by advanced technologies. The project involves vegetable cultivation under protected condition, post-harvest management, collection centres, retail outlets and training to the growers. The vegetable produced in the project

area will be immediately transported to the pack house where grading, sorting and standard packing will be done. Further to narrow down the supply chain, open retail outlets and mobile stores are proposed.

h. Establishing Centre of Excellence for different crops

Centre of Excellence for Horticulture crops like fruits, vegetables and flowers are aimed at designing, manufacturing and installation of State of the art facilities be it greenhouse technology, environmental control systems, tissue culture labs, crop production modules, developing Centre of Excellence for fruits, vegetables and flowers in different states of India.

i. Computerization and Governance

As per the Stated policy under the scheme of E-governance and computerization of the various Development Departments, desktop computers and associated equipments had been contemplated. In order to ensure effective implementation of E-Governance, computer equipments (such as laptops, personal computers, Tablets *etc*) are essential.

j. Research on Crop Diversification

Crop Diversification refers to a shift from the regional dominance of one crop to regional production of a number of crops, to meet ever increasing demand of cereals, pulses, vegetables, fruits, oilseeds, fibres, fodder, grasses *etc*. It aims to improve soil health and to maintain dynamic equilibrium of the agro-ecosystem. In the instant case, crop diversification is intended to promote technological innovations for sustainable agriculture and enable farmers to choose crop alternatives for increased productivity and income.

Crop Insurance

Crop Insurance coverage has to be done for major crops like paddy, millets, pulses, oilseeds, sugarcane, cotton, cash crops and all Horticulture crops in the notified areas.

Infra structures and Assets

Protected cultivation

Precision Farming through Hi tech cultivation practices It is proposed to plan for increasing the production of crops by adopting advanced technology like high tech cultivation practices which includes high density planting, use of quality planting materials, tissue culture planting materials, canopy management, micro irrigation fertigation, mulching, use of bunch sleeves for banana, protected cultivation, shade net nursery and mechanization in horticulture crop cultivation by popularizing the same among the growers

to enhance productivity. It is proposed to adopt high density planting in mango, guava and Sapota in select districts of the State by providing subsidy.

Mushroom production

Commercial production of edible Mushroom converts the agricultural, industrial, forestry and household wastes into nutritious food (Mushroom). Indoor cultivation of oyster mushroom utilizes the vertical space and is regarded as the highest protein producer per unit area and time.

Vermicompost unit

Earthworms are often referred to as farmer's friend s and nature's ploughmen. Earthworms are extremely important in soil formation, principally through their activities in consuming organic matter, fragmenting and mixing it intimately with mineral particles to form aggregates. During their feeding, earthworms promote microbial activity greatly, which in turn accelerates the breakdown of organic matter and stabilization of soil aggregates. The end product, commonly termed vermicompost and obtained as the organic wastes pass through the earthworm gut is quite different from the parent waste material. Therefore it is to recycle the farm waste into organic manure necessary to establish a permanent vermicompost unit to recycle the farm waste into organic manure.

Supporting structures for vegetable production

Vegetables are excellent source of vitamins and minerals such as calcium, iron besides proteins and carbohydrates. Vegetables combat under nourishment and are known to be a cheapest source of natural protective tools.

a. Staking, trellis and propping

Though most vegetables grow on their own, plants with vining and sprawling growth or with brittle stems and heavy fruits need support. Peas, cucumbers, pole beans, tomatoes, squash, egg plants and peppers benefit from trellising, caging or staking. Trellising, which involves tying plant stems to vertical structures with garden twine or plant ties, allows you to fit more plants in the garden. It is the preferred support method for peas, indeterminate vine-type tomatoes, pole and runner beans, cucumbers and smaller squash varieties.

b. Pandal structure

Pandal vegetables, being short duration crops, fit very well in the intensive cropping system. It offers viable option for the growers to get increased income per unit area. It includes number of vegetables viz. bitter gourd, snake gourd, ribbed gourd, pandal avarai

etc. These vegetables are grown on commercial scale and are capable of giving high yields and high economic returns to the growers. It has tremendous market potential. The cultivation of vegetable is constrained due to high initial investment cost. With the objective of enhancing area under pandal vegetables and encouraging farmers to obtain increased income, it is proposed to implement the project on “Encouraging Cultivation of Pandal Vegetables. In this situation, financial support for the establishment of pandal structures for the vegetables will increase in the area and production of pandal vegetables. Along with which the support on supply of high yielding / hybrid seed materials for cultivation will be additional assistance among the farmers to get enhanced yield per unit area.

District Horticulture information and training centre

The information centre also houses a training centre where all the training programmes are being imparted. This includes training under various schemes like Mission for Integrated Development of Horticulture, Micro Irrigation, Medicinal plants, Perimetro vegetable cluster development Scheme, ATMA *etc*. The Centre would not only provide employment, but also training to agriculturists in batches on raising vegetables and horticultural crops and conduct orientation programme for Department officials.

Additionally, to augment the promotion of cut flowers and other horticulture crops cold storage facilities can also be made in the horticulture complex. The other facilities like glass house, green house for production and multiplication of ornamental plants will also be established in the training centre for demonstration purpose.

Community Seed Banks (CSBs) are places of storage where indigenous seed varieties are conserved and managed by community members. These ex-situ conservation sites provide farmers with free and easy access to traditional seeds under the condition that a farmer returns twice the amount of seeds he or she borrowed. They not only reduce farmers’ dependence on seed companies but also help to conserve the agro-biodiversity of their villages. These seed banks form the cornerstone of GREEN’s efforts for biodiversity conservation through community empowerment.

Post-Harvest Management

In agriculture, postharvest handling is the stage of crop production immediately following harvest, including cooling, cleaning, sorting and packing. Postharvest treatment largely determines final quality, whether a crop is sold for fresh consumption, or used as an ingredient in a processed food product. The most important goals of post-harvest handling is

to avoid moisture loss and slow down undesirable chemical changes, and avoiding physical damage such as bruising, to delay spoilage. Sanitation is also an important factor, to reduce the possibility of pathogens that could be carried out by fresh produce, for example, as residue from contaminated water used for washing.

Modernization of State Horticulture Farms

In Tamil Nadu, there are 52 State Horticulture Farms including six parks and garden. The prime objectives of these farms are to produce pedigree planting materials of fruits, flowers, spices and vegetables. The quality planting materials produced in these farms are distributed to the farmers directly and through various schemes of the department. The parks and garden serve as study centre to the students apart from educating the public on Eco preservation. It is programmed to expand the production of planting materials of various kinds of fruits viz., mango, guava, sapota and flowers like rose, jasmine and ornamental plants and avenue trees by modernizing the nurseries, developing the farms as demonstration centres for the latest techniques in horticulture, enhancing the productivity and augmenting farm mechanization for increasing the efficiency.

Horticultural mechanization

With increasing agricultural labour Shortage in India, a calculated shift to mechanization is imperative. Not only does mechanization provide for optimal utilization of factor resources (*viz.,* land, labour, water, capital and expensive farm inputs), it also helps farmers to save valuable time and effort. Judicious use of time, labour and resources helps to facilitate sustainable intensification (multi-cropping) and timely planting of crops and towards giving crops more time to mature, leading to improved productivity.

Micro Irrigation, Water harvesting and Management

With increasing demand on water from various sectors, the availability of water is under severe stress. Agriculture sector is the largest use of water. While irrigation projects (Major and medium) have contributed to the development of water resources, conventional methods of irrigation are inefficient and lead to wastage of water. It has been recognized that the use of modern irrigation methods like drip and sprinkler irrigation are the ways for the efficient use of surface as well as ground water resources. Majority of fruit trees / orchards are under rainfed cultivation. It is advisable to bring a minimum percentage of the area under irrigation by providing and strengthening the water harvesting system. This includes provision of drip irrigation facilities wherever possible, recharge of defunct bore

wells, provision of pipes and protected distribution system, provision of water lifting devices, *insitu*water conservation and the like.

Capacity building of Horticultural Officers and Farmers

In service training of horticultural officers regularly would help them to update the modern technologies in production, marketing, and value addition of horticultural crops including organic farming. Similarly, exposure visits to farmers to nearby districts / States and even foreign countries would help them aware and adopt new innovative technologies.

Budget

The budget requirement for fulfilling the various interventions is ₹ 8187.61 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.16.

Implementing agency

The projects will be implemented by the Department of Horticulture.

Table 4.16. Budget Requirement for Horticulture **(₹. in lakhs)**

Sl. No.	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
A	**Production Growth**															
I	**Area expansion of fruit crops**															
1	TC Banana & TC Pineapple	Ha	1.25	All blocks	13	16.25	13	16.25	18	22.50	18	22.50	22	27.50	84	105.00
2	Normal Planting in lime / lemons	Ha	0.6	B2	5	3.00	5	3.00	5	3.00	5	3.00	5	3.00	25	15.00
3	Normal Planting in Mango	Ha	0.6	B1,B3,B4,B5 ,B6	11	6.60	15	9.00	17	10.20	20	12.00	21	12.60	84	50.40
4	Normal planting in Guava	Ha	0.6	B2	2	1.20	2	1.20	0	0.00	0	0.00	0	0.00	4	2.40
5	Normal planting in Pomegranate	Ha	0.6	B2	2	1.20	0	0.00	0	0.00	0	0.00	0	0.00	2	1.20
6	Normal planting in Avocado	Ha	0.6		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
II	**Area expansion of vegetable crops**															
7	Brinjal	Ha	0.5	All blocks	75	37.50	75	37.50	75	37.50	75	37.50	75	37.50	375	187.50
8	Bhendi	Ha	0.5	All blocks	45	22.50	45	22.50	46	23.00	46	23.00	48	24.00	230	115.00
9	Green Chillies	Ha	0.5	B1,B4	25	12.50	28	14.00	30	15.00	32	16.00	35	17.50	150	75.00
10	Gourds including pumpkin and tinda	Ha	0.5	All blocks	65	32.50	69	34.50	75	37.50	75	37.50	78	39.00	362	181.00
11	Small Onion	Ha	0.5	All blocks except B1	29	14.50	29	14.50	32	16.00	32	16.00	35	17.50	157	78.50
12	Bellary Onion	Ha	0.5	All blocks except B1	28	14.00	28	14.00	31	15.50	32	16.00	34	17.00	153	76.50
13	Annual Moringa	Ha	0.5	All blocks except B1,B6	65	32.50	72	36.00	78	39.00	78	39.00	79	39.50	372	186.00
14	Tapioca	Ha	0.5	B1,B2,B4	20	10.00	26	13.00	32	16.00	38	19.00	45	22.50	161	80.50

Sl. No.	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
III	**Area expansion of Spices crops**															
15	Seed and Rhizomatic spices (Coriander, Turmeric, Ginger, Dry Chilly, Cumin, Fennel, Fenugreek, Dil, Cardamom etc.,)	Ha	0.3	All blocks	195	58.50	209	62.70	237	71.10	242	72.60	250	75.00	1133	339.90
V	**Area expansion of Flower crops**															
16	Loose flowers - Jasminumsp, Crossandra, Marigold, Rose, Chrysanthemum, Neerium, Torenia	Ha	0.4	All blocks	35	14.00	47	18.80	57	22.80	66	26.40	75	30.00	280	112.00
17	Bulbous flowers - Tube rose, Gladioli, Dahlia, Bird of paradise, Heliconia, Tulip	Ha	1.5	All blocks	58	87.00	69	103.50	80	120.00	91	136.50	100	150.00	398	597.00
VI	**Area expansion /Gap filling of Plantation crops**															
18	Cashew	Ha	0.5	B1,B3,B4,B5	140	70.00	140	70.00	150	75.00	150	75.00	150	75.00	730	365.00
VII	**Rejuvenation/INM-IPM/Mulching/Anti bird net**															
19	Mango/Cashew - Rejuvenation	Ha	0.4	All blocks except B1,B6	230	92.00	235	94.00	240	96.00	245	98.00	255	102.00	1205	482.00
20	INM/IPM for Horticultural crops	Ha	0.04	All blocks	190	7.60	195	7.80	205	8.20	215	8.60	220	8.80	1025	41.00
21	Mulching	Ha	0.32	All blocks	67	21.44	74	23.68	83	26.56	100	32.00	110	35.20	434	138.88
VIII	**Pollination Support through Bee Keeping**															

Sl. No.	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
22	Bee hive & Colony	No	0.04	All blocks	420	16.80	420	16.80	440	17.60	460	18.40	460	18.40	2200	88.00
23	Honey Extractor	No	0.2	All blocks	42	8.40	42	8.40	44	8.80	46	9.20	46	9.20	220	44.00
IX	**Organic Farming**															
24	Organic farming and PGS certification in 50 acre cluster	1 cluster	14.95	B3,B4,B5,B6	1	14.95	0	0.00	1	14.95	1	14.95	1	14.95	4	59.80
25	HDPE Vermibed	No	0.16	All blocks	64	10.24	65	10.40	65	10.40	66	10.56	56	8.96	316	50.56
X	**Rainfed Area development**															
26	Integrated farming system - Horticulture Based farming	Ha	0.5	All blocks	125	62.50	135	67.50	140	70.00	150	75.00	155	77.50	705	352.50
27	Moisture stress management - Minimum irrigation guarantee by PUSA hydrogel	Ha	0.1	All blocks	500	50.00	660	66.00	690	69.00	750	75.00	800	80.00	3400	340.00
B	**Infra structures and Assets creation**															
1	Poly Green House	1000 Sq.m	9.35	All blocks	6	56.10	6	56.10	6	56.10	5	46.75	4	37.40	27	252.45
2	Shadenet	1000 Sq.m	7.1	All blocks	6	42.60	6	42.60	6	42.60	4	28.40	4	28.40	26	184.60
3	Cottage mushroom unit	1 No.	1.0		0	0.00	1	1.00	0	0.00	0	0.00	0	0.00	1	1.00
III	**Vermicompost unit**															
4	Permanent Vermicompost Unit	600 cu.ft	1.0	All blocks	36	36.00	37	37.00	39	39.00	40	40.00	42	42.00	194	194.00
IV	**Supporting structures for Horticulture crop production**															

Sl. No.	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
5	Permanent Pandal structure	Ha	4.0	All blocks	16	64.00	16	64.00	16	64.00	16	64.00	18	72.00	82	328.00
V	**District Horticulture information and training centre**															
VI	**Community seed bank**															
C	**Special interventions**															
1	Offseason Annual Moringa production - Pod	Ha	1.25	All blocks except B1	115	143.75	116	145.00	116	145.00	118	147.50	120	150.00	585	731.25
2	Farm deficiency correction	Ha	0.04	All blocks except B4	165	6.60	165	6.60	170	6.80	175	7.00	180	7.20	855	34.20
3	Promotion of Roof top Garden/ Potager garden Kit	No	0.005	B2,B3,B5	250	1.25	250	1.25	250	1.25	250	1.25	250	1.25	1250	6.25
4	Promotion of Roof top Garden/ Potager garden Kit with shadenet	No	0.073	B2	10	0.74	10	0.74	10	0.74	10	0.74	10	0.74	50	3.68
5	Banana Bunch Sleeve	Ha	0.25	B3	10	2.50	0	0.00	10	2.50	0	0.00	0	0.00	20	5.00
6	AESA based IPM in fruits and vegetables (Pheramone trap)	Ha	0.04	All blocks	70	2.80	77	3.08	85	3.40	90	3.60	95	3.80	417	16.68
7	AESA Based IPM in fruits and vegetables (Yellow sticky trap)	Ha	0.04	All blocks	70	2.80	77	3.08	85	3.40	90	3.60	95	3.80	417	16.68
8	AESA Based IPM in fruits and vegetables (Light trap)	Ha	0.08	All blocks	70	5.60	72	5.76	75	6.00	80	6.40	85	6.80	382	30.56
D	**Post-Harvest Management**															
1	Pack house (9m X 6m)	1 No	4	All blocks	6	24.00	6	24.00	6	24.00	3	12.00	3	12.00	24	96.00

Sl. No.	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
2	Low cost onion structure 25 mt	1 No	1.75	B6	5	8.75	5	8.75	5	8.75	5	8.75	5	8.75	25	43.75
E	**Development of Farms, Nurseries and Parks**															
3	Developmental activities in new/ existing state Horticultural farm, Keelapalur	No	25	B6	0	0.00	0	0.00	1	25.00	0	0.00	0	0.00	1	25.00
F	**Mechanization - Machineries, Equipments & Tools**															
1	Power tiller/Tractor/Minitractor	Nos	1	B1,B6	15	15.00	15	15.00	15	15.00	15	15.00	15	15.00	75	75.00
2	Manual Sprayer-Knapsack/Foot operated Sprayer	Nos	0.12	B3,B5,B6	50	6.00	50	6.00	50	6.00	50	6.00	50	6.00	250	30.00
3	Plastic crates for vegetable & fruits handling	No of sets containing 10crates	0.075	All blocks	132	9.90	137	10.28	140	10.50	145	10.88	155	11.63	709	53.18
4	Oil engine	No	0.15	All blocks	95	14.25	95	14.25	95	14.25	95	14.25	95	14.25	475	71.25
5	Aluminium Ladders for Harvesting	No	0.2	All blocks	130	26.00	130	26.00	130	26.00	130	26.00	130	26.00	650	130.00
G	**Water / Irrigation Management**															
1	Micro Irrigation - Drip	Ha	1.12	All blocks	160	179.20	160	179.20	170	190.40	170	190.40	170	190.40	830	929.60
2	Rain gun	Ha	0.34	All blocks	115	39.10	115	39.10	115	39.10	115	39.10	115	39.10	575	195.50
3	Water harvesting system for individuals	No	1.5	B2,B3,B5,B6	16	24.00	16	24.00	18	27.00	9	13.50	9	13.50	68	102.00
H	**Capacity Building**															

Sl. No.	Interventions	Unit	Unit cost	*Block Covered (B1-B6)	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
1	Training to farmers within the State (2 days Rs.1000/farmer/day)	No	0.02	All blocks	440	8.80	440	8.80	440	8.80	440	8.80	490	9.80	2250	45.00
2	Training to farmers outside the state. (30 farmers/Batch)	No	0.105	All blocks	6	0.63	6	0.63	6	0.63	6	0.63	6	0.63	30	3.15
3	Exposure visit to farmers for 5 days. (Rs.1000/farmer/day)	No	0.05	All blocks	55	2.75	55	2.75	70	3.50	70	3.50	85	4.25	335	16.75
4	Exposure visit of farmers outside India	No	4	B1,B6	8	32.00	8	32.00	12	48.00	12	48.00	16	64.00	56	224.00
5	Training to staff outside the state / Batch of 5 members	No	0.04	All blocks	6	0.24	6	0.24	6	0.24	6	0.24	6	0.24	30	1.20
6	Training to staff outside India	No	6	B1,B2,B3	5	30.00	5	30.00	5	30.00	5	30.00	5	30.00	25	150.00
7	Computerization &E-governance training	No	1	All blocks	6	6.00	0	0.00	0	0.00	0	0.00	0	0.00	6	6.00
8	Publicity and Documentation training	No	0.5	All blocks	6	3.00	6	3.00	6	3.00	6	3.00	6	3.00	30	15.00
I	**Crop Insurance and Risk Mitigating schemes**															
1	Crop Insurance	Ha	0.025	All blocks except B1	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
	Grand Total					**1513.29**		**1556.48**		**1697.82**		**1674.24**		**1745.79**		**8187.61**

*Andimadam-B1, Ariyalur-B2, Jayankondam-B3, Sendurai-B4, T.Palur-B5, Thirumanur-B6

4.3. Agricultural Engineering

Agricultural mechanization is the process whereby equipments, machineries and implements are utilized to boost agricultural and food production. It is the application of machineries, equipments and implements in the day to day farm activities to increase marginal output in food production and poverty eradication. It increases productivity of land and labour by meeting timeliness of farm operations and increase work out-put per unit time. Besides its paramount contribution to the multiple cropping and diversification of agriculture, mechanization also enables efficient utilisation of inputs such as seeds, fertilisers and irrigation water. The agricultural mechanization is the only way out to face the challenge of farm worker's shortage. Thus the ultimate objective of agricultural mechanization strategies in developing countries is help to increase the welfare of farm households and create positive dynamics and opportunities for economic growth in rural areas.

Strategies:

- ✓ Promotion and strengthening of Agricultural Mechanization through training, Testing and Demonstration in order to ensure performance testing of agricultural machinery and equipment, capacity building of farmers and end users and promoting farm mechanization through demonstrations.
- ✓ Demonstration, Training and Distribution of post-harvest Technology and Management (PHTM) to popularize the technology for primary processing, value addition, low cost scientific storage/transport and the crop by-product management through demonstrations, capacity building of farmers and end users. Provides financial assistance for establishing PHT units.
- ✓ Promotion of ownership to small and marginal farmers for various agricultural machinery and equipments such as Tractors, Power tillers, Rice transplanter, Self-propelled machinery, Tractor/Power tiller drawn equipments (MouldBoard Plough, Disc plough, Cultivator, Harrow, Leveller Blade, Ridger, Laser, Land Leveller, Reversible Mechanical Plough, Rotavator, Rotopuddler, Reversible Hydraulic Plough, Post hole digger, Reaper, Seed driller, Balers, Coconut thrash cutter, coconut frond chopper, Multi crop thresher, Paddy thresher, Brush cutter, Chaff cutter, Drum Seeder) and Plant protection equipments.
- ✓ Provision of suitable financial assistance to establish farm machinery banks for custom hiring for appropriate locations and crops.
- ✓ Introduction of renewable energy in the villages which would replace other fuels. Also attractive for water pumping applications in remote areas. Hence solar operated

photovoltaic water pumping system provides better sustainable alternative option to fulfill irrigation requirement of agriculture.

- ✓ Strengthening of communication and information facilities in order to disseminate the information in rural areas.
- ✓ Awareness to be created towards the usage of Sugarcane infielder, Bird scarer, Mechanized row crop cultivation and Modernization of tractor workshop which indirectly increase the production.
- ✓ Promotion of agro-processing and management machinery at community level through supply of post-harvest machinery such as self-propelled/other driven horticultural machinery (Chain saw/ wheel barrow/ Mango grader/ planter and other suitable self-propelled machineries and equipments), Manual horticultural equipments (Aluminium ladder/ Aluminium pole, Plucker), Post-harvest equipments for grains, oil seeds and Horticultural crops (Mini Rice mill, Mini Dhall mill, Millet mill, Oil mill with filters, Extractor, pomegranate air extractor, Custard apple pulper, Dehydration unit, Pricking Machine, Humidifier, Packing machine, Power driven Dehusker, Thresher, Harvester, De-spiking, Deconing, Peeler, Splitter, Stripper, Boiler, Steamer, Solar Dryer, Washing machine, Grinder, Pulveriser, Polisher, Cleaner cum grader, gradient separator, Specific gravity separator) this would make sure that more value is added to farm outputs locally.
- ✓ Establishment of Agricultural Engineering Extension centres in order to collect information related to Government subsidy on agricultural / machineries / equipments / irrigation systems etc., compilation of latest technologies related to Agricultural Engineering and Development of video cassettes library related to Processing of agricultural products, working of important agricultural machines, equipments, repairand maintenance with proper setting of the different agricultural machines / and equipments.
- ✓ Promotion of training to AED engineers on post-harvest techniques and bio energy.

Expected outcome

Implementation of the above strategies such as supply of farm implements to carry out mechanised cultivation operations and demonstration to farmers the advantage of using Agricultural implements and machinery would increase the production and productivity. Post-Harvest technologies to farmers would prevent loss of food grains during harvest and storage and preserve the quality of produce in respect of perishable commodities. Disseminated technologies on renewable energies, in particular, solar energy for agricultural activities in respect of pumping with solar powered pumps, drying farm produce for enhancement of quality to fetch reasonable market price.

Budget

The overall budget requirement for implementation of above interventions is ₹. 5158.43 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.17.

Implementing agency

The projects will be implemented by the Department of Agricultural Engineering

Table 4.17. Budget Requirement for Agricultural Engineering **(₹. in lakhs)**

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Capacity Building															
1	Demonstration of Agricultural Machinery	All Blocks	No's/Ha	0.04	6.00	0.24	6.00	0.24	6.00	0.24	6.00	0.24	6.00	0.24	30.00	1.20
2	Training of farmers	All Blocks	No's/Ha	0.04	2.00	0.08	2.00	0.08	2.00	0.08	2.00	0.08	2.00	0.08	10.00	0.40
	Tractors															
3	Tractor (8-15 PTO HP)	All Blocks	No's/Ha	3.00	30.00	90.00	35.00	105.00	30.00	90.00	30.00	90.00	30.00	90.00	155.00	465.00
4	Tractor (15-20 PTO HP)	All Blocks	No's/Ha	4.00	10.00	40.00	10.00	40.00	10.00	40.00	10.00	40.00	10.00	40.00	50.00	200.00
5	Tractor (Above 20-40 PTO HP)	All Blocks	No's/Ha	6.00	5.00	30.00	5.00	30.00	5.00	30.00	5.00	30.00	5.00	30.00	25.00	150.00
6	Tractor (40-70 PTO HP)	All Blocks	No's/Ha	8.50	5.00	42.50	5.00	42.50	5.00	42.50	5.00	42.50	5.00	42.50	25.00	212.50
	Power Tillers															
7	Power Tiller (8 BHP & above)	All Blocks	No's/Ha	1.75	160.00	280.00	180.00	315.00	155.00	271.25	150.00	262.50	180.00	315.00	825.00	1443.75
	Rice Transplanter															
8	Self Propelled Rice Transplanter (4 rows)	All Blocks	No's/Ha	2.50	5.00	12.50	9.00	22.50	7.00	17.50	7.00	17.50	5.00	12.50	33.00	82.50
	a. Land Development, tillage and seed bed preparation equipments															
9	Rotavator	All Blocks	No's/Ha	0.35	30.00	10.50	30.00	10.50	30.00	10.50	30.00	10.50	30.00	10.50	150.00	52.50
	b. Sowing Planting, Reaping and Digging Equipments															

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
10	Post Hole Digger	All Blocks	No's/Ha	0.80	2.00	1.60	2.00	1.60	2.00	1.60	2.00	1.60	2.00	1.60	10.00	8.00
	c. Intercultivation Equipments															
11	Power Weeder (engine operated below 2 BHP)	All Blocks	No's/Ha	0.25	5.00	1.25	5.00	1.25	5.00	1.25	5.00	1.25	5.00	1.25	25.00	6.25
	d. Equipment for residue management / hay and forage equipments															
12	Balers	All blocks except Andimadam	No's/Ha	2.90	2.00	5.80	2.00	5.80	5.00	14.50	2.00	5.80	5.00	14.50	16.00	46.40
	e. Harvesting and Threshing equipments															
13	Brush Cutter	All Blocks	No's/Ha	0.25	5.00	1.25	5.00	1.25	5.00	1.25	5.00	1.25	5.00	1.25	25.00	6.25
	f. Chaff Cutter (Operated by engine / electric motor below 3 hp and by power tiller and tractor of below 20 BHP tractor)	All Blocks	No's/Ha	0.25	4.00	1.00	5.00	1.25	5.00	1.25	3.00	0.75	5.00	1.25	22.00	5.50
14	Cultivator	All Blocks	No's/Ha	0.25	5.00	1.25	5.00	1.25	5.00	1.25	5.00	1.25	5.00	1.25	25.00	6.25
15	Rotavator	All Blocks	No's/Ha	0.80	40.00	32.00	45.00	36.00	40.00	32.00	50.00	40.00	45.00	36.00	220.00	176.00
	c.Inter Cultivation Equipments															
16	Power Weeder (engine operated above 2 BHP)	All Blocks	No's/Ha	0.70	2.00	1.40	2.00	1.40	3.00	2.10	2.00	1.40	2.00	1.40	11.00	7.70

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	e.Harvesting& Threshing Equipments															
17	Brush Cutter	All Blocks	No's/Ha	0.30	5.00	1.50	5.00	1.50	5.00	1.50	5.00	1.50	5.00	1.50	25.00	7.50
	f.Chaff Cutter **(**Operated by engine / electric motor above 3-5 hp and by power tiller and tractor of below 35 BHP tractor)	All Blocks	No's/Ha	0.40	3.00	1.20	3.00	1.20	3.00	1.20	4.00	1.60	3.00	1.20	16.00	6.40
	a.LandDevelopment, tillage and seed bed preparation equipments															
18	Disc Plow	All Blocks	No's/Ha	0.60	2.00	1.20	2.00	1.20	2.00	1.20	3.00	1.80	3.00	1.80	12.00	7.20
19	Cultivator	All Blocks	No's/Ha	0.30	2.00	0.60	5.00	1.50	2.00	0.60	2.00	0.60	2.00	0.60	13.00	3.90
20	Rotavator	All Blocks	No's/Ha	0.95	40.00	38.00	40.00	38.00	30.00	28.50	30.00	28.50	30.00	28.50	170.00	161.50
	b.Sowing Planting, Reaping and Digging Equipments:															
21	Post Hole digger	All Blocks	No's/Ha	1.05	1.00	1.05	1.00	1.05	1.00	1.05	1.00	1.05	1.00	1.05	5.00	5.25
	d.Harvesting& Threshing Equipments															
22	Thresher/Multi Crop threshers	All Blocks	No's/Ha	4.00	10.00	40.00	11.00	44.00	10.00	40.00	12.00	48.00	13.00	52.00	56.00	224.00
	e.Equipments for Residue management/Hay and Forage Equipments															

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
23	Balers (Round)	All Blocks	No's/Ha	**3.50**	2.00	7.00	2.00	7.00	2.00	7.00	2.00	7.00	2.00	7.00	10.00	35.00
	Plant protection equipments															
24	Manual sprayer: Knapsack/foot operated sprayer	All Blocks	No's/Ha	**0.015**	75.00	1.13	75.00	1.13	65.00	0.98	75.00	1.13	75.00	1.13	365.00	5.48
25	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity 8-12 lts)	All Blocks	No's/Ha	**0.060**	20.00	1.20	20.00	1.20	20.00	1.20	40.00	2.40	40.00	2.40	140.00	8.40
26	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 12-16 lts)	All Blocks	No's/Ha	**0.080**	10.00	0.80	10.00	0.80	10.00	0.80	10.00	0.80	10.00	0.80	50.00	4.00
27	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 16 lts)	All Blocks	No's/Ha	**0.10**	5.00	0.50	5.00	0.50	5.00	0.50	5.00	0.50	5.00	0.50	25.00	2.50
28	Establishment of Farm Machinery Banks for Custom Hiring	All blocks except Sendurai	No's/Ha	**28.00**	1.00	28.00	1.00	28.00	1.00	28.00	1.00	28.00	1.00	28.00	5.00	140.00
	Solar Energy															
29	**5 hp**	All Blocks	No's/Ha	**3.75**	30.00	112.50	35.00	131.25	30.00	112.50	30.00	112.50	30.00	112.50	155.00	581.25
30	**7.5 hp**	All Blocks	No's/Ha	**5.30**	15.00	79.50	15.00	79.50	15.00	79.50	15.00	79.50	15.00	79.50	75.00	397.50
31	**10 hp**	All Blocks	No's/Ha	**6.75**	15.00	101.25	15.00	101.25	15.00	101.25	15.00	101.25	15.00	101.25	75.00	506.25
	Information Technology (IT) related items															
32	Computer & its accessories	All Blocks	No's/Ha	0.80	0.00	0.00	2.00	1.60	2.00	1.60	2.00	1.60	0.00	0.00	6.00	4.80

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
33	Tablet (Tab)	All Blocks	No's/Ha	0.25	0.00	0.00	4.00	1.00	4.00	1.00	4.00	1.00	4.00	1.00	16.00	4.00
34	Xerox machine	All Blocks	No's/Ha	1.50	0.00	0.00	2.00	3.00	1.00	1.50	1.00	1.50	0.00	0.00	4.00	6.00
	Sugarcane Infielder															
35	Mecanized row crop cultivation-Pilot mechanization Demonstration	All Blocks	No's/Ha	0.04	0.00	0.00	3.00	0.12	3.00	0.12	2.00	0.08	2.00	0.08	10.00	0.40
	Post-Harvest Technology and Management machinery (PHTM)															
36	Chain saw/ Wheel barrow/ Mango grader/ planter and other suitable self propelled machineries and equipments for horticulture Crops	All blocks	No's/Ha	1.00	0.00	0.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	20.00	20.00
	Post-Harvest Equipments for food grains, oil seeds and Horticultural Equipments															
37	Mini Rice Mill	All Blocks	No's/Ha	1.50	0.00	0.00	2.00	3.00	2.00	3.00	2.00	3.00	0.00	0.00	6.00	9.00
38	Millet Mill	All Blocks	No's/Ha	1.50	0.00	0.00	3.00	4.50	3.00	4.50	2.00	3.00	2.00	3.00	10.00	15.00
39	Oil mill with filter press (for all type of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	1.20	0.00	0.00	1.00	1.20	1.00	1.20	1.00	1.20	2.00	2.40	5.00	6.00

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
40	Extractor (for all type of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	5.00	5.00
41	Pomegranate Aril Extractor	All Blocks	No's/Ha	1.50												
42	Packing Machines (for all types of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	3.00	0.00	0.00	3.00	9.00	3.00	9.00	2.00	6.00	0.00	0.00	8.00	24.00
43	All types of Power driven Dehusker/ sheller/ Threshers/ Harvesters/ De-spiking/ Deconing Machine/ Peeler/ Splitter/ Stripper (for all type of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	1.20	0.00	0.00	3.00	3.60	3.00	3.60	2.00	2.40	2.00	2.40	10.00	12.00
44	All types of Washing Machines (for all type of Horticulture / Food grain / Oil seed crop)	All Blocks	No's/Ha	1.50	0.00	0.00	1.00	1.50	1.00	1.50	1.00	1.50	1.00	1.50	4.00	6.00
45	All types of Cleaner cum grader/ Gradient separator/ Specific gravity separator (for all types of Horticulture / Food grain / Oil seed crop)	All Blocks	No's/Ha	0.75	0.00	0.00	2.00	1.50	2.00	1.50	1.00	0.75	1.00	0.75	6.00	4.50

Sl No	Interventions	*Block Covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
46	Construction of Agricultural Engineering Extension centres (AEECs)	All Blocks	No's/Ha	75.00	0.00	0.00	1.00	75.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	75.00
47	Training of AED Engineers on " Agricultural Processing" and " Bio- Energy"	All Blocks	No's/Ha	0.04	0.00	0.00	4.00	0.16	2.00	0.08	2.00	0.08	2.00	0.08	10.00	0.40
	Total					**966.80**		**1165.88**		**997.65**		**990.86**		**1037.26**		**5158.43**

*Andimadam-B1, Ariyalur-B2, Jayankondam-B3, Sendurai-B4, T.Palur-B5, Thirumanur-B6

4.4. Agricultural Marketing

The Government is taking every effort to attain sustainable agricultural development by transforming agriculture into a commercial venture, by switching over to new scientific methods of cultivation so as to increase the productivity manifold. Besides, through value addition, processing and utilization of the marketing opportunities, the incremental output can be ensured. To further improve the marketing opportunities and to reduce the loss of agricultural produces, several measures have to be taken up by way of interventions like promotion of commodity groups and market information, strengthening of Uzhavar shandies and regulated markets, construction of storage godown, provision of market access and market activities, supply chain and post-harvest management, infrastructure and assets, and capacity building of farmers.

The core problem however in Agribusiness development is the general failure in coordinating the decisions of the private stake holders *viz.,* farmers, traders and agricultural processors and service providers by the government and non-governmental sectors. In fact farmers fail to link themselves through effective producer-organizations to undertake joint decisions in production and marketing as well. Such weak linkages also due to limited access to relevant market intelligence and inadequate market infrastructure. Farmers are also poorly linked to research and extension service providers to address their specific technology and knowledge needs that would enable them into high-value production systems.

Entrepreneurs also have weak linkages with the farmers through contracts and vertical integration arrangements and are away from consumers because of absence of organized retail chains. Linkage with service providers are characterized by lack of confidence. The inadequacy in certification, quality assurance systems and inadequate infrastructure continues to limit the integration of production and international markets.

Agricultural produce are seasonal and perishable in nature. In a good season there may be a local glut, but because of insufficient transport facilities, lack of good roads and poor availability of packaging materials, the surplus cannot be taken quickly enough to the markets in urban areas. Moreover, the surplus often cannot be stored for sale in the off-season because of inadequate local storage facility; the farmers are often forced to market their produce at low price. Thus, the cultivators do not get a good price for their produce because of the glut, and some of it is spoiled resulting in complete loss. Currently pulses are processed manually using thirugu, ural, chakki, *etc.*, which is laborious and time consuming.

Due to existing problems in processing of pulses and millets, their market is not profitable for the farmers. To reduce the loss of agricultural produce which are up to 30 per cent, necessary provisions are needed to ensure remunerative price to the produce.

So, to accelerate the growth substantially, a new way of linking of Agricultural produce and marketing and promoting Agribusiness are focused. Promotion of commodity groups, farmer producer agencies, marketing organization and market linkage, encouraging of private players in marketing, value addition, crop specific supply chain management, more infrastructural facilities for processing and sensitizing the farmers for market-led agriculture by rendering crop advisory and market information are focused. Agri-business also contributes to the production of higher-value products and diversification away from the staple foods. Through this diversification and the development of the value chain between producers and consumers, the rural economy benefits from innovation and the creation of non-farm employment.

Project components

- Promotion of commodity groups and market information through construction of own building for Agmark lab in all blocks
- Construction of storage godown for commodity groups in all blocks
- Construction of drying yards in all blocks
- Formation of Farmer Producer Organizations (FPO) in all blocks
- Distribution of power sprayer in all blocks
- Supply of steel ladder, tarpaulin in all blocks
- Exposure visit (within state & outside state) for commodity group farmers to acquire value addition technologies in all blocks

Budget

The district plan proposes an outlay of ₹ 6245.00 Lakhs over a period of five years for Ariyalur district. The details of budget requirement for each intervention across the blocks are shown in Table 4.18.

Expected Outcome

The expected impact of the intervention will be increasingly competitive agribusiness sector leading to diversification, higher-value added products and higher incomes for farmers, farm workers and entrepreneurs and reduced rural poverty. The interventions will facilitate the development of a competitive agriculture sector, promoting diversification and contributing to the transformation of agriculture into a system producing higher value produces. The interventions will also provide higher-value for consumers, value that will be shared as distributed benefits to value chain stakeholders including farmers, entrepreneurs and workers.

Implementing Agency

The Block-level officials of the Department of Agricultural Marketing and Agri-Business will implement the programs.

Table 4.18 Budget for Strengthening of Agricultural Marketing and Agri-Business (₹. in lakhs)

Sl. No	Intervention	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Promotion of Commodity Groups and Market Information															
1	Own building for AGMARK Lab	1	0.0025	All Blocks	1	25.00	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00
	Strengthening of UzhavarSandhai and Regulated Market															
2	Drying Yard	1	0.0005	All Blocks	22	110.00	22	110.00	24	120.00	24	120.00	25	125.00	117	585.00
3	Storage godown	1	7.5000	All Blocks	1	7.50	2	15.00	3	22.50	2	15.00	4	30.00	12	90.00
4	Administrative Office Room (Vehicle shed ,waiting hall,washingRoom,Borewell with motor, water Tank)	1	10.0000		1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	1	10.00
6	Transaction Shed	1	100	All Blocks	1	100.00	1	100.00	2	200.00	1	100.00	1	100.00	6	600.00
7	Upgradation of UzhavarShadhais	1	0.25													
	Formation of FPO / Strengthening of Existing Commodity Groups															
8	FPO	1	100	All Blocks	2	200.00	2	200.00	2	200.00	1	100.00	4	400.00	11	1100.00
	Provision of Market Access and Market Activities	Nos	0.5													
9	Power sprayer for 100 FIG groups(2 per FIG)				0	0.00	0	0.00	1	69.00	0	0.00	0	0.00	1	69.00
10	Steel Ladder	Nos	0.10	All Blocks	315	31.50	280	28.00	290	29.00	290	29.00	285	28.50	1460	146.00

Sl. No	Intervention	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
11	Tarpaulin	1 No.	0.2	All Blocks	30	6.00	30	6.00	30	6.00	30	6.00	30	6.00	150	30.00
	Post-Harvest Infrastructure and Machinaries															
12	Branding,Packaging, Marketing	Nos	10	B2, B6	0	0.00	0	0.00	1	10.00	0	0.00	1	10.00	2	20.00
13	Value addition of cashewapple	Nos	100	B2, B6	0	0.00	1	100.00	0	0.00	1	100.00	0	0.00	2	200.00
	Capacity building Programme															
14	Exposure Visits - within state	Nos	0.75	All Blocks	30	22.50	30	22.50	30	22.50	30	22.50	30	22.50	150	112.50
15	Exposure Visits - outside state - 3 days	Nos	2	All Blocks	345	690.00	310	620.00	320	640.00	320	640.00	315	630.00	1610	3220.00
16	Training on Market led Extension, Agmarkgrading&Food safety, post-harvest technology, Supply Chain Management, Grading-sorting-packing, Market linkages & Exports, Food processing and value addition at district level	Nos	0.25	All Blocks	30	8.00	30	8.00	30	8.00	30	8.00	30	8.00	150	38.00
	Total					**1210.00**		**1209.00**		**1326.00**		**1140.00**		**1359.50**		**6245.00**

*B1 - Ariyalur, B2 - Andimadam, B3 - Thirumanur, B4 - Jayankondam, B5 - T.Palur, B6 - Sendurai

4.5. Animal Husbandry

Livestock have been an integral component of India's agricultural and rural economy since time immemorial, supplying energy for crop production in terms of draught power and organic manure, and in turn deriving their own energy requirements from crop byproducts and residues. Livestock are now more valued as source of food and contribute over one-fourth to the agricultural gross domestic product and engage about 9% of the agricultural labour force. The livestock sector has been growing faster than crop sector; however, in recent years, the growth both in livestock production and productivity has decelerated considerably. India's livestock sector is one of the largest in the world. It has 56.7% of world's buffaloes, 12.5% cattle, 20.4% small ruminants, 2.4% camel, 1.4% equine, 1.5% pigs and 3.1% poultry. In 2010-11, livestock generated outputs worth Rs. 2075 billion which comprised 4% of the GDP and 26% of the agricultural GDP. The total output worth was higher than the value of food grains.

Animal Husbandry sector plays a crucial role in ensuring the welfare of rural population. A majority of farmers depend on Animal Husbandry for their livelihood. Moreover, livestock sector provides supplementary employment and sustainable source of income to many small and marginal farmers. Thus, this sector is emerging as an important sector, leveraging the rural economy. In addition, this sector provides a continuous flow of essential food products like milk, meat, eggs besides draught power, raw materials like wool and hides for industries, and manure. With increase in production of livestock products, livestock rearing is also considered as an avocation with high export potential. Distribution of livestock wealth is more egalitarian compared to land and hence, from the equity and livelihood perspective, it is considered as an important component in poverty alleviation programmes.

Keeping view in this mind, various major interventions are being planned and proposed in the district agricultural plan to be implemented beyond 12th five year plan. The major interventions are:

- ✓ Increasing the availability of fodder through field level interventions
- ✓ Increasing the availability of fodder by strengthening farm infrastructure
- ✓ Livestock breeding management
- ✓ Livestock health management
- ✓ Improving the livestock productivity
- ✓ Improving the service delivery at veterinary institutions
- ✓ Enhancing livestock management
- ✓ Capacity building training to farmers and extension officials.

Increasing the availability of fodder through field level interventions

Livestock rearing is one of the major occupations in India and is making significant contribution to the country's GDP. The livestock population, over the years, has shown a steady growth on broadly two counts *i.e.* (i) increase in the number of stall feeding based bovine livestock *viz.* buffaloes and hybrid cattle, and (ii) increase in the number of free grazing based livestock like goats and sheep that can survive on the fast degrading pastures. The animal husbandry sector has a good growth potential. However, further growth of the sector will be as much dependent upon the availability of fodder. The available data reveals that the present fodder availability in the country is well below requirement. The data also reveals that only about half of the annual fodder requirement is met from the cultivated fodder and crop residues, whereas open grazing and fodder availability from common property resources like forests, pastures, village commons, *etc.* fulfills the remaining half of the annual fodder requirement. The issue to be taken note of is that it is the open grazing and fodder availability from the common property resources that provides sustenance to a vast majority of households with animal husbandry as the only vocation.

The increasing number of livestock and the changing dynamics of animal husbandry practices require corresponding increase in the type of fodder needed to meet the requirements of these new situations. To overcome these issues the following field level interventions are proposed to improve the fodder availability.

- Establishment of vermicomposting unit in all blocks
- Distribution of Azolla trays in all blocks
- Fodder plot development in all blocks
- Meichal land development in all blocks
- Distribution of seedlings, sprinklers, grass cutter and raingun to the farmers in all blocks

Livestock breeding management

Over the past few decades, imported exotic cow varieties have gain a boost in milk production in Tamil Nadu. Most of the cattle breeds are exotic. These breeds theoretically produce a lot of milk, but are not well-adapted to our conditions. About 69% of Indian cows are owned by the economically poor strata of the society. These folks cannot afford to house these exotic breeds in regulated climate conditions.

The government has significantly mismanaged cow breeding. The average milk yield per animal in India is just 3.2 kgs, compared to a global average of 6.6 kgs. The

dairy policy and outlook is highly outdated and needs to be replaced with modern, evidence-based thinking

Livestock industry continues to demonstrate a beneficial impact on rural people by improving their income, employment and consumption and thereby acting as a potential tool in alleviating rural poverty. Artificial insemination (AI) has proven to be very effective for the improvement of the genetic potential of animals for higher production and there is no surprise why today Artificial Insemination is the back bone of all breeding programmes in India. The replacement of unproductive and ageing animals in the herd and its expansion are very important to maintain the scale of economy of the farm. Augmentation of fertility in repeat breeders and sex-sorted semen are some of the modern scientific tools which have been proposed to be employed for effective breeding management to enhance the livestock fertility and productivity. The following interventions will help to improve livestock breeding management, such as

- Controlled Internal Drug Release (CIDR)centre in all blocks
- Establishment and distribution of sex-sorted semen facility in all blocks

Improving the livestock productivity

Although India is a major producer of livestock products the average productivity of livestock is lower compared to world average. Inadequate availability of feed and fodder, insufficient coverage through artificial insemination, low conception rates, non-availability of quality males for breeding, poor management practices, high mortality and morbidity losses due to diseases, inadequate marketing infrastructure and unorganized marketing are the other major concerns. To maximize the livestock productivity the following interventions should be implemented are:

- Distribution of sheep, goat, buffalo, piggery, poultry units in all blocks
- Establishment of modern poultry, rabbit , piggery, sheep, goat and bull shed in all blocks
- Establishment of disposal pits for poultry unit in all blocks
- Integrated farming in all blocks

Improving the service delivery at veterinary institutions

Veterinary hospitals, dispensaries, Aid Centers, diagnostic laboratories and veterinary manpower already available are much less than what is required. These services would be improved and expanded and will continue to be provided by the state owned facilities with an appropriate system of recovery of cost wherever feasible. Private investment to improve delivery of animal health services including facilities by private

veterinary graduates would be encouraged. Mobile veterinary dispensaries with provision for vaccination and facilities to generate awareness of farmers regarding various livestock management issues would be promoted to improve outreach. For companion animals, state governments may consider to extend the veterinary services on full cost recovery basis. To improve the service delivery the following interventions mentioned hereunder:

- Deep freezer facility for storage of vaccines and medicines in all blocks
- Establishment of infrastructure facilities, disease diagnostic lab, mobile veterinary units, surgical theatres and ambulance facilities. in all blocks

Enhancing livestock management

The country has rich and diverse genetic resources of livestock in the form of a large number of species, breeds, and strains within a species. India has some of the best breeds of cattle and buffaloes with traits for dairy, draught power and dual purposes, several carpet wool breeds of sheep, highly prolific breeds of goats and adaptive breeds of poultry. Such utility genes and breeds would be identified, conserved and utilized for breeding and research. The focus would be on conservation of indigenous breeds of livestock and poultry. By developing slaughter house, livestock shandy also is helpful to enhancing livestock management. The following interventions are proposed to enhance livestock management:

- Animal identification and traceability in all blocks
- Conservation of indigenous breeds in all blocks

Capacity building

Educating the farmers about the advanced crop production technologies as well as the techniques which will enrich the knowledge of farmers, youths and young entrepreneurs through conduct of trainings and demonstrations. On field demonstrations are conducted on fodder production technologies, seed production, poultry farming and sheep farming etc.

Capacity building programme is to strengthen the capacities of farmers to manage sustainable biodiversity so as to increase their benefits, and to promote awareness and responsible action, in the form of trainings, demonstrations, exposure visits, etc. To create awareness among the farmers the following trainings and campaigns have to be conducted.

- Establishment of farmers training Centre in Ariyalur block
- Conducting demonstration camps and campaigns in all blocks

- Creating awareness of livestock management to the farmers through training programmes in all blocks

Budget

The major themes proposed in the plan for animal husbandry sector with a total budget out lay of ₹ 2901.38 Lakhs (Table 4.19).

Implementing agency

The projects proposed will be implemented by the Department of Animal husbandry sector.

Table 4.19 Budget requirement for Animal Husbandry Sector

(₹. in lakhs)

Sl. No	Components	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Increasing the Availability of Fodder through Field level Interventions															
1	Establishment of Vermi composting unit (single bed)	Nos	0.05	All Blocks	55	2.75	55	2.75	55	2.75	55	2.75	55	2.75	275	13.75
2	Fodder production to the farmers by Hydrophonic methods	Nos	0.1	All Blocks	12	1.20	12	1.20	12	1.20	12	1.20	12	1.20	60	6.00
3	Distribution of Azolla trays	Nos	0.03	All Blocks	250	7.50	250	7.50	250	7.50	250	7.50	250	7.50	1250	37.50
4	Distribution of Silage bags for conservation of fodder crops	Nos	0.005	All Blocks	255	1.28	255	1.28	255	1.28	255	1.28	255	1.28	1275	6.38
5	Fodder plot development	acre	0.05	All blocks	400	20.00	400	20.00	400	20.00	200	10.00	200	10.00	1600	80.00
6	Meichal land development (infrastructure development)	acre	6	B1, B3, B6	6	36.00	6	36.00	0	0.00	0	0.00	0	0.00	12	72.00
	Livestock Breeding Management															
7	CIDR (Controlled Internal Drug Release) for increasing Fertility in Cattle	Nos	0.01	All Blocks	475	4.75	475	4.75	475	4.75	475	4.75	475	4.75	2375	23.75
8	Distribution of sex sorted semen to veterinary	Nos	0.015	All Blocks	6000	90.00	6000	90.00	6000	90.00	6000	90.00	6000	90.00	30000	450.00

Sl. No	Components	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	institution															
	Improving the Livestock Productivity															
9	Distribution of Sheep/Goat units -semi intensive system	Nos	0.6	All Blocks	60	36.00	60	36.00	60	36.00	60	36.00	60	36.00	300	180.00
10	Distribution of Buffalo units(5 Buffaloes)	Nos	4.5	All Blocks	15	67.50	15	67.50	15	67.50	15	67.50	15	67.50	75	337.50
11	Integrated farming (Goat+Cattle+Fish+Agriculture /Horticulture)	Unit	2	All Blocks	5	10.00	5	10.00	5	10.00	5	10.00	5	10.00	25	50.00
12	Development of Native chicken farms	Farm	1	All Blocks	25	25.00	25	25.00	25	25.00	25	25.00	25	25.00	125	125.00
13	Establishment of disposal pits for poultry unit	Nos	1	All Blocks	25	25.00	25	25.00	25	25.00	25	25.00	25	25.00	125	125.00
	Improving the Service Delivery at Veterinary Institutions															
14	Deep freezer facility for Storage of vaccines and Medicines	Nos	10	All Blocks	0	0.00	0	0.00	6	60.00	0	0.00	0	0.00	6	60.00
15	Establishment of Infrastructure facilities for Veterinary Institutions	Nos	30	All Blocks	6	180.00	1	30.00	0	0.00	0	0.00	0	0.00	7	210.00
16	Establishment of Mobile Disease Diagnostic Labs	Nos	20	All Blocks	1	20.00	2	40.00	1	20.00	1	20.00	1	20.00	6	120.00
17	Establishment of Mobile Veterinary	Nos	10	All Blocks	2	20.00	1	10.00	1	10.00	1	10.00	0	0.00	5	50.00

Sl. No	Components	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Units															
18	Establishment of surgical theatres at veterinary institution	Nos	30	All Blocks	2	60.00	1	30.00	1	30.00	1	30.00	1	30.00	6	180.00
19	Providing solar lighting panels at veterinary institution	Nos	1	All Blocks	7	7.00	7	7.00	7	7.00	7	7.00	7	7.00	35	35.00
20	Package of Modern Veterinary Diagnostic Aids to Veterinary Institutions such as Computerised X rays, Ultrasound, Diathermy etc.	Nos	30	All Blocks	2	60.00	1	30.00	1	30.00	1	30.00	1	30.00	6	180.00
21	Establishment of Ambulance facility for animals	Nos	80	B2	1	80.00	1	80.00	0	0.00	0	0.00	0	0.00	2	160.00
	Livestock Management															
22	Animal Identification and Traceability	Unit of 1000 animals	0.1	All Blocks	300	30.00	30	3.00	30	3.00	30	3.00	30	3.00	420	42.00
23	Conservation of Indigenous breeds	Pack	10	All Blocks	1	10.00	1	10.00	1	10.00	1	10.00	1	10.00	5	50.00
	Capacity Building															
24	Establishment of Farmers training Centre	Nos	200	B2	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00
25	Conducting Demonstrations,	Nos	0.1	All Blocks	150	15.00	150	15.00	150	15.00	150	15.00	150	15.00	750	75.00

Sl. No	Components	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Camps and Campaigns															
26	Creating awarness of livestock management to the farmers through Training Programmes	Nos	0.1	All Blocks	65	6.50	65	6.50	65	6.50	65	6.50	65	6.50	325	32.50
	Grand Total					**815.48**		**788.48**		**482.48**		**412.48**		**402.48**		**2901.38**

*B1-Andimadam, B2- Ariyalur, B3-Jayankondam, B4-Sendurai, B5-T.Palur, B6-Thirumanur

4.6. Dairy Development

The importance of dairying in a country like India hardly needs emphasize. India has vast resources of livestock, which play an important role in the national economy and also in the socioeconomic development of millions of rural households. India has one of the largest stocks of cattle and buffaloes: more than 50 per cent of the world's buffaloes and 20 per cent of its cattle. Dairy sector acts as an important source of income for rural families, plays a vital role in providing gainful employment and income generating opportunities in the district. Dairy industry in the country is expected to witness spectacular growth in 2017, according to experts.

During the last 10 years, the annual growth rate in Indian dairy industry is 4.6 per cent as compared to the global growth rate of 2.2 per cent. During this period, per capita consumption of milk in the country was 340 g a day as against 299 g globally. “India’s milk production has touched 155.4 metric tonnes during 2015-16. Consumption is increasing at a faster rate. However in the country more than 90 per cent of the dairying is at the subsistence level so the emerging trends have to increase the county’s milk production moreover. To fulfill the shortage in dairy sector the following interventions have been suggested.

Enhancing milk production and milk processing units

The qualities of animals are critical in determining its milk productivity and hence overall production. Currently, low productivity per animal hinders development of the dairy sector. Despite being the world’s largest milk producer, India’s productivity per animal is very low, at 987 kg per lactation, compared with the global average of 2038 kg per lactation. The low productivity is a result of ineffective cattle and buffalo breeding programmes, limited extension and management on dairy enterprise development, traditional feeding practices that are not based on scientific feeding methods, and limited availability and affordability of quality feed and fodder. Animal health and breeding services provision, veterinary infrastructure development and vaccinations are the responsibility of the state government. These services have traditionally been provided for free or at a very subsidized rate but in the past few years it was payable service. State livestock development agencies are being set up as autonomous bodies to offer services in animal breeding in the form of procurement, production and distribution of breeding inputs (such as semen and liquid nitrogen), training and promotional activities. Despite these initiatives, the availability of services remains limited and extension activities in dairy management are woefully lacking.

Let to get a better improvement in milk production than before the following inputs have been suggested.

- Provision of veterinary medicine in all blocks
- Fodder development equipment and seed material in all blocks
- Milk testing equipment's
- Equipment's for artificial insemination in all blocks
- Milk society buildings and cow shed in all blocks
- Cryogenic containers in all blocks
- Weighing machines in all blocks
- Computer accessories in all blocks

Capacity building

India is one of the largest milk producers in the world with an annual production of over 155.4 metric tonnes of milk, yet the sector faces numerous issues. One of the major challenges facing the dairy sector is the growing gap between milk supply and demand. Another major challenge arises from the fact that more than 92 per cent of the animals are owned by smallholders who had little ownership of land to manage them. The small farmers do not have sufficient resources and lack of training in dairy sector that leads to poor animal health and low milk yield. Furthermore, the small farmers lack knowledge of modern breeding practices. To make the farmers as scholars in recent technologies, trainings and veterinary camps have to be conducted. To make sure this the following intervention has been proposed.

- Training of personnel of Mission Planning and Control Station(MPCS),Union and federation in all blocks

Quality control

Quality is a vital ingredient of a good brand. Remember the "core benefits" – the things consumers expect. These must be delivered well. To ensure the quality control, the following interventions have been suggested:

- Adulteration detection equipment's in Andimadam block
- Milk testing equipment and laboratory in Andimadam block

Development for dairy sector

Though the milk production has reached an all-time high in the district, the producers are not able to market the milk produced. This is mainly due to inadequate infrastructure available for procurement, processing of milk and marketing network. Providing proper infrastructure to the veterinary health care institutions is necessary for the timely diagnosis and treatment of animal diseases. An efficient management of cattle will be incomplete without a well-planned and adequate housing of cattle. Good quality milk is essential for production of good quality dairy products, taste and flavor, free from pathogens and long keeping quality. Immediately after milking, the milk must be cooled preferably to 4° C. This requires mechanical refrigeration or milk cooling tanks. These are expensive and can usually be afforded by large scale commercial farms. For small scale dairy farmers, setting up a milk cooling centre centrally may be the ideal solution. The following buildings have been proposed for better storage and improvement

- Construction of dairy farm and skim milk powder plant in Andimadam block

Budget

An outlay of ₹ 1947.28 lakhs is proposed to fulfill the aforementioned interventions for five years. This foresighted implementation of developmental schemes in Dairy Sector has enabled to increase the per capita income of rural households in backward Districts. The details of budget requirement for each intervention across the blocks are shown in Table 4.20.

Implementing agency

The projects will be implemented by the Department of Dairy Development.

Table 4.20 Budget requirement for Dairy Development Sector in Ariyalur District **(₹. in lakhs)**

Sl. No	Interventions	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Procurement and Input															
1	Veterinary Medicine	1	2	All 6 Blocks	2	4.00	2	4.00	2	4.00	2	4.00	2	4.00	10	20.00
2	Two wheeler for AI technician	1	0.5	All 6 Blocks	2	1.00	2	1.00	2	1.00	2	1.00	2	1.00	10	5.00
3	Computer system with accessories	1	0.5	All 6 Blocks	3	1.50	3	1.50	3	1.50	3	1.50	3	1.50	15	7.50
4	Fodder seed materials	1	0.25	All 6 Blocks	2	0.50	2	0.50	2	0.50	2	0.50	2	0.50	10	2.50
5	Fodder development equipments like chaff cutter, Mower etc.,	1	0.2	All 6 Blocks	0	0.00	0	0.00	0	0.00	5	1.00	5	1.00	10	2.00
6	Bulk Milk coolers of Various capacities	1	15	All 6 Blocks	0	0.00	2	30.00	0	0.00	0	0.00	2	30.00	4	60.00
7	Milk cans	1	0.035	All 6 Blocks	25	0.88	25	0.88	25	0.88	50	1.75	50	1.75	175	6.13
8	Electronic weighing scales of various capacities.	1	0.3	All 6 Blocks	2	0.60	2	0.60	2	0.60	2	0.60	2	0.60	10	3.00
9	Electronic milk testing equipments	1	1.25	All 6 Blocks	2	2.50	2	2.50	5	6.25	5	6.25	5	6.25	19	23.75
10	Milking machine	1	0.8	All 6 Blocks	5	4.00	5	4.00	5	4.00	5	4.00	5	4.00	25	20.00
11	Cow shed	1	5	All 6 Blocks	0	0.00	0	0.00	5	25.00	5	25.00	5	25.00	15	75.00
12	Society Buildings	1	20	All 6 Blocks	2	40.00	2	40.00	2	40.00	2	40.00	2	40.00	10	200.00
13	Cryogenic containers	1	0.35	All 6 Blocks	0	0.00	0	0.00	2	0.70	2	0.70	0	0.00	4	1.40
14	Equipments for Artificial Insemination	1	0.5	All 6 Blocks	0	0.00	0	0.00	2	1.00	2	1.00	0	0.00	4	2.00
	Capacity building															
15	Training of personnel of MPCS, Union and Federation.	1	0.05	All 6 Blocks	0	0.00	50	2.50	0	0.00	0	0.00	50	2.50	100	5.00
16	Infertility Camps	1	0.2	All 6 Blocks	5	1.00	5	1.00	5	1.00	5	1.00	5	1.00	25	5.00

Sl. No	Interventions	Unit	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Quality control															
17	Adulteration detection equipments	1	4	B1	0	0.00	0	0.00	1	4.00	0	0.00	0	0.00	1	4.00
18	Milk testing equipment and Laboratory.	1	5	B1	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00	1	5.00
	Civil work Infrastructure															
19	Construction of Dairy	1	1500	B1	0	0.00	0	0.00	1	1500.00	0	0.00	0	0.00	1	1500.00
	Grand Total					**55.98**		**88.48**		**1590.43**		**88.30**		**124.10**		**1947.28**

B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.7. Fisheries

Indian fisheries and aquaculture is an important sector of food production, providing nutritional security to the food basket, contributing to the agricultural exports and engaging about fourteen million people in different activities. With diverse resources ranging from deep seas to lakes in the mountains and more than 10 per cent of the global biodiversity in terms of fish and shellfish species, the country has shown continuous and sustained increments in fish production since independence. Constituting about 6.3 per cent of the global fish production, the sector contributes to 1.1 per cent of the GDP and 5.15 per cent of the agricultural GDP. The total fish production of 10.07 million metric tonnes presently has nearly 65 per cent contribution from the inland sector and nearly the same from culture fisheries. Hence it's necessary to improve the fisheries development throughout the country.

Enhancement of fisheries production

Aquatic plants growing in ponds and lakes are beneficial for fish and wildlife. They provide food, dissolved oxygen, and spawning and nesting habitat for fish and waterfowl. Aquatic plants can trap excessive nutrients and detoxify chemicals. However, dense growths (over 25% of the surface area) of algae and other water plants can seriously interfere with pond recreation and threaten aquatic life. Water plants can restrict swimming, boating, fishing, and other water sports. Biological controls for aquatic vegetation have received considerable publicity. Several species of fish are herbivorous in that their principal diet is aquatic vegetation. One such species, the Grass Carp (also known as the white amur or Chinese carp), is being tested in various parts of the country. Hence in this district it is suggested to implement the biological control of aquatic weeds by stocking of Grass Carps in Aquatic weed infested water bodies

Tremendous potential exists in India to augment fish production from freshwater aquaculture resources, which are spread across the length and breadth of the country. With concerted efforts to mobilize farmers to adopt fish farming, application of appropriate technologies for sustainable fish farming and fish seed production and availability of institutional finance, it would be possible to bring in substantial hikes in the annual fish production from the aquaculture sector within a span of 5 years. Hence in this district it suggested to implement the following intervention to enhance the production and growth of fisheries through Introduction of short seasonal fish species in existing farm ponds, increasing fishing efficiency of inland fishermen and fish farmers, direct stocking of advanced fingerlings in irrigation tanks and panchayat tanks, promotion of quality fish marketing by traditional fishers by providing moped with ice box, expansion of

fish culture in multipurpose farm ponds by encouraging farmers and up gradation of fishing efficiency of inland fishermen.

Infrastructure and assets

Fish farming is an age old activity and in practice from ancient times. The successful fish culture requires ploughing of pond, addition of manure, stocking of fish seed; eradication of unwanted aquatic plants and animals, watering the pond; harvesting the crop and marketing of the produce. The fish culture technologies and economics are simple and understandable to the fish farmers. Hence the construction of fish ponds in this district is recommended for its commercial production with budget cost of ₹. 45.00 lakhs.

Quality fish seed is the pre-requisite for successful fish farming. Department is using the techniques of hypophysation for the production of fish seed of culturable varieties. Brood stocks of required fish are maintained and sex-wise segregate is made two months before. The pairing is made and injected with calculated dose of pituitary gland or ovaprim, ovatide or ovpal is injected to male and female fish. Within the 6-8 hours of the injection eggs from female and sperm from male are released in the water. The fertilization is external. Normally one kg fish releases about one lakh eggs. Hence it is necessary to construct the fish seed rearing centres and Establishment of gift farms and provision of inputs in this district.

Budget

The budget requirement for fulfilling the above interventions is ₹. 312.00 Lakhs (Table 4.21).

Implementing agency

Department of Fisheries will be implementing the project

Table 4.21 Budget Requirement for Fisheries **(₹. in lakhs)**

Sl. No	Fisheries	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Enhancement of fisheries															
1	Up gradation of Fishing Efficiency of Inland Fishermen of Tamil Nadu.	Jayakondam,T. Palur, Thirumanur	Nos	0.75	150	112.50	0	0.00	0	0.00	0	0.00	0	0.00	150	112.50
2	Promotion of quality fish marketing by traditional fishers by providing mobbed with icebox	Jayakondam, T. Palur, Thirumanur	Nos	0.5	50	25.00	0	0.00	0	0.00	0	0.00	0	0.00	50	25.00
3	Introduction of short seasonal fish species in existing farm ponds	Ariyalur, Sendurai	ha	7.9	0	3.16	0	0.00	0	0.00	0	0.00	0	0.00	0.4	3.16
4	Increasing fishing efficiency of inland fishermen and fish farmers	T. Palur, Thirumanur	Nos	0.75	50	37.50	0	0.00	0	0.00	0	0.00	0	0.00	50	37.50
5	Increasing seed availability by establishing seed rearing farms	T. Palur, Thirumanur	Nos	5	2	10.00	0	0.00	0	0.00	0	0.00	0	0.00	2	10.00
6	Expansion of fish culture in multipurpose farm ponds by encouraging farmers of Tamil Nadu	All Blocks	ha	2	17	34.00	0	0.00	0	0.00	0	0.00	0	0.00	17	34.00
7	Direct stocking of advanced fingerlings in irrigation tanks and panchayat tanks	All Blocks	ha	0.006667	3000	20.00	0	0.00	0	0.00	0	0.00	0	0.00	3000	20.00
	Creation of infrastructure facilities															
8	Encouraging fish culture by establishment of fish culture ponds and provision inputs	All Blocks	ha	4.5	10	45.00	0	0.00	0	0.00	0	0.00	0	0.00	10	45.00
	Infrastructure and Assets															
9	Establishment of gift farms and provision of inputs	All Blocks except Thirumanur	ha	5.05	5	25.25	0	0.00	0	0.00	0	0.00	0	0.00	5	25.25
	Grand Total					**312.00**		**0.00**		**0.00**		**0.00**		**0.00**		**312.00**

B1 – Andimadam, B2 – Ariyalur, B3 – Jayakondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

4.8 Fisheries Research

Tamil Nadu Fisheries University (TNFU) is the State funded. Fisheries University in India imparting education, research and training to enhance fish production and utilization by following the State Agricultural University (SAU) pattern and syllabi. The prominent area of research in the area of aquaculture are: improving the quality of progeny by developing sperm bank, development of techniques for the culture of fin fishes in cages, enhancing the water use efficiency and productivity by bio-floc technology, developing the improved methods of ornamental fish culture and breeding techniques and inventing techniques to prevent and cure fish diseases. Stock assessment of important fishery resources, mapping the fauna and understanding the biology of commercially important and rare species, coastal areas and inland waters monitoring for the major pollutants and waste water management are the focus areas of research. Value addition to fish has been a major focus area and technologies for fish pickle, fish noodles and ready to eat products like fish curry, fish puff, fish cutlet and fish burger have been evolved. Quality control wing of fish processing has evolved several rapid techniques for detection of human pathogens.

Project components

- Awareness campaign on health beneficial attributes of fish in Ariyalur block
- Production of short films on nutritive value of fish and screening in theatres and television channels in Ariyalur block
- supply of preserved ready to eat and ready to cook fish products through public distribution systems in Ariyalur block
- Supply of fish and fish products in mid-day meal programme in Ariyalur block
- Supply chain management to promote consumption of farmed freshwater fishes in Ariyalur block

Budget

The budget requirement for fulfilling the above interventions is ₹ 141.60 lakhs.

Implementing agency

Department of Fisheries will be implementing the project

Table 4.22 Budget Requirement for Fisheries Research **(₹. in lakhs)**

Sl. No	Interventions	Unit cost	*Blocks covered (B1-B6)	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Awareness campaign on health beneficial attributes of fish	0.005	Ariyalur	52	0.26	52	0.26	52	0.26	52	0.26	52	0.26	260	1.30
2	Production of short films on nutritive value of fish and screening in theatres and television channels	50	Ariyalur	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00
3	supply of preserved ready to eat and ready to cook fish products through public distribution systems	12.9	Ariyalur	1	12.90	0	0.00	0	0.00	0	0.00	0	0.00	1	12.90
4	Supply of fish and fish products in mid-day meal programme	12.9	Ariyalur	0	0.00	1	12.90	0	0.00	0	0.00	0	0.00	1	12.90
5	Supply chain management to promote consumption of farmed freshwater fishes	64.5	Ariyalur	1	64.50	0	0.00	0	0.00	0	0.00	0	0.00	1	64.50
	Grand total				**77.66**		**13.16**		**50.26**		**0.26**		**0.26**		**141.60**

4.9. Public Works Department

Public works department is a premier agency of the state government operating throughout the state for construction of works in Roads, Bridges, Buildings, maintenance and repairs of works and construction of works of other departments of the state government and centrally sponsored schemes. The main function of public works department is designing, construction and maintenance of roads and bridges, residential and non-residential building of state government, construction of national highway, construction of roads financed from NABARD-RIDF, CRF and construction of various works on Airport and Air landing ground.

With the declining and erratic rainfall, it has become necessary to go in for *in situ* water conservation. Further the loss of top soil through erosion needs to be controlled to maintain the soil fertility. The reduction of water storage facilities and the conversion of water bodies for non-agricultural purposes result in the rainwater run-off. The *in situ* water conservation will help in reducing the water and soil erosion and also improve the ground water recharge which is the need of the day. Hence, to raise the water table level, construction of check dams, need to be taken up in canals to increase the storage capacity of the tanks and there by crop cultivation area in tank ayacut area may be increased. Thus the main objective of Public works department in this district is to construct check dam and Anicut across the river in order to increase the ground water level.

Project components

- Construction of a check dam across Marudaiyarriver in Sundakkudi village H/O Andipattakkadu in Ariyalur taluk& District.
- Construction of Anicut across Marudaiyarriver in Nochikulam village of Alathurtaluk to feed Karaiyavettieri in Karaiyavetti village of Ariyalurtaluk& district.
- Construction of a check dam across Anaivariodai near Kulumur village in Sendurai taluk of Ariyalur District.
- Construction of Anicut across Marudaiyar River to feed Sukkiraneri in Aranur village of Ariyalurtaluk& district.
- Construction of a check dam across Marudaiyar River near Kadambur village in Udaiyampalayam taluk of Ariyalur District.

Budget

The budget requirement for fulfilling the above interventions is ₹. 23,500 Lakh (Table 4.23).

Expected outcome

The project will increase the Ground water table level and carrying capacity of canals during the heavy rain period and thereby increasing the crop cultivation area. This will result in the ensuring of food security for the people.

Implementing agency

Department of Water Resources Development will be implementing the project.

Table 4.23 Budget Requirement for Water Resource Organization **(₹. in lakhs)**

Sl. No.	Intervention	*Blocks covered (B1-B6)	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Construction of a checkdam across Marudaiyarriver inSundakkudi village H/O Andipattakkadu in Ariyalurtaluk& District.	Ariyalur	Nos	500	1.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	500.00
2	Construction of Anicut across Marudaiyar river in Nochikulam village of Alathurtaluk to feed Karaiyavettieri in Karaiyavetti village of Ariyalurtaluk& district	Thirumanur	Nos	1.8284377	0.00	0.00	1093	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1093.83	2000.00
3	Construction of a checkdam across Anaivariodai near Kulumur village in Senduraitaluk of Ariyalur District.	Sendurai	Nos	400.00	0.00	0.00	0.00	0.00	1.00	400.00	0.00	0.00	0.00	0.00	1.00	400.00
4	Construction of Anicut across Marudaiyar River to feed Sukkiraneri in Aranur village of	Thirumanur	Nos	9.75	0.00	0.00	0.00	0.00	0.00	0.00	2050.52	20000.00	0.00	0.00	2050.52	20000.00
5	Construction of a checkdam across Marudaiyar River near Kadambur village in Udaiyarpalayamtaluk of Ariyalur District.	Ariyalur	Nos	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	600.00	1.00	600.00
	Total					**500.00**		**2000.0**		**400.0**		**20000.0**		**600.00**		**23500.0**

4.10. Cooperatives

Agricultural cooperatives or farmers cooperatives are cooperatives where farmers pool their resources for mutual economic benefit. Agricultural cooperatives are broadly divided into agricultural service cooperatives, which provide various services to their individual farming members, and agricultural production cooperatives, where production resources such as land or machinery are pooled and members farm jointly. Agricultural supply cooperatives aggregate purchases, storage, and distribution of farm inputs for their members. By taking advantage of volume discounts and utilizing other economies of scale, supply cooperatives bring down members' costs. Supply cooperatives may provide seeds, fertilizers, chemicals, fuel, and farm machinery. Some supply cooperatives also operate machinery pools that provide mechanical field services (*e.g.,* plowing, harvesting) to their members. Agricultural marketing cooperatives are often formed to promote specific commodities.

Project components

- Construction of Office Building in all blocks except T.Palur and Sendurai blocks
- Construction of compound wall in all blocks
- Office Building Renovation in all blocks except T.Palur
- Purchase of computer and peripherals in Andimadam
- Godown Renovation in Andimadam and Thirumanur block
- Tractor Shed in Sendurai and T.Palur blocks

Budget

The budget requirement for fulfilling the above interventions is ₹. 793.45 Lakhs (Table 4.24).

Expected outcome

Agricultural marketing cooperatives will provide the services involved in moving a product from the point of production to the point of consumption. Agricultural marketing includes a series of interconnected activities involving planning production, growing and harvesting, grading, packing, transport, storage, food processing, distribution and sale.

Implementing agency

Department of Cooperative Societies will be implementing the project.

Table 4.24 Budget Requirement for Cooperatives **(₹. in lakhs)**

Sl. No	Co-operation	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total Amount	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Construction of Compound wall	All blocks	14	154.22	21	184.34	13	113.97	8	60.45	9	92.65	65	605.63
2	Construction of Office Building	All blocks except B5, B6	3	46	2	27.25	1	12.25	1	20	0	0	7	105.50
3	Establishment of Tractor Shed	B4, B5	3	4.5	3	4.5	2	3	1	1.5	1	1.5	10	15.00
4	Renovation of Godown	B1, B6	0	0	1	15	1	0.5	0	0	0	0	2	15.50
5	Renovation of Office Building	All blocks except B5	5	8.54	7	11.9	7	13.2	4	7.19	5	8.99	28	49.82
6	Strengthening of Cooperation Centres (Furniture's, Solar panel, Modern counter, Xerox machine, Air Conditioner, CCTV Camera, Bore well, Generator, UPS Battery, Cash Counting Machine, Invertor, Jewel Weighing Machine, Packing Machine, Purchase of computer and peripherals, Hand Billing machine, LED Display for tender process, Purchase of Jewel Carat Meter, Smart Card Printing Machine, Burglary Alarm, Agricultural Equipments, Safety Locker, Purchase of Display racks, Defender Door, Purchase of Paddy drying machine, Automatic Printer machine, Conveyer, E-Tender process, Fork Lifter, Gunny Bag Stitching machine, Jewel tester, Pallets, Tarpaulin, Trolley and Printing Press machineries)	All Blocks	1	2	0	0	0	0	0	0	0	0	1	2.00
	Total			**215.26**		**242.99**		**142.92**		**89.14**		**103.14**		**793.45**

*B1 – Andimadam, B2 – Ariyalur, B3 – Jayankondam, B4 – Sendurai, B5 – T.Palur, B6 – Thirumanur

Table 4.25 Consolidated Budget for Ariyalur District (₹. in lakhs)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	3972.16	2370.9	2060.42	2358.89	2812.35	13574.71
2	Agricultural Research	0.00	0.00	0.00	0.00	0.00	0.00
3	Horticulture	1513.29	1556.48	1697.82	1674.24	1745.79	8187.62
4	Agricultural Engineering	966.80	1165.88	997.65	990.86	1037.26	5158.45
5	Agricultural Marketing	1210.00	1209.00	1326.00	1140.00	1359.50	6244.50
6	Seed Certification and Organic Certification	0.00	0.00	0.00	0.00	0.00	0.00
7	Animal Husbandry	815.48	788.48	482.48	412.48	402.48	2901.40
8	Animal Sciences Research (TANUVAS)	0.00	0.00	0.00	0.00	0.00	0.00
9	Dairy Development	55.98	88.48	1590.43	88.30	124.10	1947.29
10	Fisheries	312.00	0.00	0.00	0.00	0.00	312.00
11	Fisheries Research (TNFU)	77.66	13.16	50.26	0.26	0.26	141.60
12	Water Resource Organization (PWD)	500.00	2000.00	400.00	20000.00	600.00	23500.00
13	Civil Supplies & Cooperatives	215.26	242.99	142.92	89.14	103.14	793.45
	Total	**9638.63**	**9435.37**	**8747.98**	**26754.17**	**8184.88**	**62761.02**

The total budget requirement for the implementation of various interventions by different departments in Ariyalur district is ₹ 62761.02 Lakhs.


KARNATAKA
KERALA
SRI LANKA