NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

THENI

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

NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP / RKVY)

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2017

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EXECUTIVE SUMMARY

Theni district was a part of the present Madurai district which was bifurcated from Madurai district from July 1997. After bifurcation of the district, it was called as “Veeran Azhagumuthu District” with headquarters at Theni. The district lies at the foot of the Western Ghats between 9º 39' and 10º 30' North latitude and between 77º 00' and 78º 30' of East Longitude. Central location: 10°04′N 77°45′E. In the plains, the temperature ranges from a minimum of 19.94 °C to a maximum of 39.5 °C. In the hills the temperatures can range from as low as 4-5 °C to 25 °C. Red loamy soil type in this district accounts for 37.48 per cent followed by red sandy soil of 14.53 per cent. Hence, Red loamy soil is the predominant soil type in Theni. The other types of soils are lateritic soil, black soil, and sandy soil. The total rainfall of the district is 720.00 mm. The North-East monsoon accounts for a highest proportion of 49.70 per cent of the total rainfall. Among the irrigation sources, open wells ranks first with a proportion of 67.87 per cent of the irrigated area followed by canal with 16.79 per cent, tube wells with 13.36 per cent and tanks with 1.98 per cent. The major crops identified in the district are Paddy, Maize, Cholam, Sugarcane, Groundnut, Cotton, Cumbu and Banana.

In most part of the district, livestock formed major source of income. Converting the vast tracts of land available in the district into fodder crop by introducing emerging technologies is a real challenge for the veterinarians, dairy professionals and agricultural experts. Such interventions would ensure a hefty increase in milk production in Theni district. Current status of 90 per cent deficit of green fodder should be given priority and hence village fodder nurseries, cultivation of green fodder, tree fodder, chaff cutter usage to enhance digestibility and to prevent wastage of feed is proposed.

Sericulture is one of the income generating enterprises and it needs technological and policy interventions for attaining growth momentum. Development of allied agricultural activities like animal husbandry and sericulture would bring higher income to the farmers. Potential exists for production of high value crops such as tapioca, vegetables, fruits, garland flowers, medicinal herbals etc.

By implementing the NADP, it is expected that agricultural production would increase considerably and lead to high per capita income growth of the farm households. Such growth would induce the private sectors to initiate the starting up of processing industries and other related industries in the district. The backward and forward linkage would ensure the overall growth of the district.

This Programme will also ensure that farmers would gain access to modern technology, training, exposure visits with adequate marketing means and storage facilities in a single location. The plan was expected to increase not only productivity but also quality of the farm produce. With the implementation of the programme, farmers in the district would get a remunerative price for their produce, besides ensuring that farm-related industries would be benefitted much.

The total budget requirements of the proposed plan for the development of agricultural and allied sectors are given below.

Consolidated Budget for Theni District

(₹. In lakhs)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	5818.76	4406.56	4417.74	5257.44	5070.76	24971.26
2	Agricultural Research (TNAU)	465.00	290.00	285.00	100.00	20.00	1160.00
3	Horticulture	5093.49	8941.56	7935.35	8805.89	9880.37	40656.66
4	Agricultural Engineering	627.09	437.80	469.65	476.64	485.44	2496.62
5	Agricultural Marketing	2671.38	482.10	552.00	289.70	555.70	4550.88
6	Seed Certification & Organic Certification	10.00	13.36	0.00	0.00	0.00	23.36
7	Animal Husbandry	669.33	1037.08	527.08	937.08	663.33	3833.90
8	Animal Science Research (TANVAS)	0.00	0.00	0.00	0.00	0.00	0.00
9	Dairy Development	2306.00	2421.00	3826.00	11768.00	2473.00	22794.00
10	Fisheries	452.00	172.00	48.00	48.00	0.00	719.00
11	Fisheries Research (TNFU)	64.76	63.16	13.16	0.26	0.26	141.60
12	Water Resource Organization (PWD)	275.00	1300.00	1260.00	500.00	650.00	3985.00
13	Civil Supplies & Co-Operation	276.53	168.85	208.00	186.00	115.10	954.48
	Total	**18729.34**	**19733.47**	**19541.98**	**28369.01**	**19913.96**	**106286.76**

The total budget requirement for the implementation of various interventions by different departments in Theni district is **₹. 106286.76 Lakh.**

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, market facilities 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 Theni 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 DISTRICT

2.1. Theni district at glance

Theni District has been formed after bifurcation from the erstwhile Madurai District as per G.O.Ms.No.679 Revenue Department Dated: 25.07.96. Consequent on the bifurcation, one new Revenue Division with headquarters at Uthamapalayam and two new Taluks at Theni and Bodinaickanur were also created with effect from 01.01.97 (Fig.1)

Fig. 1. Map of the Theni District

2.2 Area, Location and Geographical features

Theni District is situated in between latitude $9^0$30' and $10^0$30' and longitude $77^0$00' and $78^0$30' with an area of 3242.30 sqkm. It has 5 taluks and 8 blocks. The major river basin is Vaigai.

2.3 Administrative Structure of Theni district

Theni district was a part of the present Madurai district, which was bifurcated from Madurai district from July 1997. After bifurcation of the district, it was called as "Veeran Azhagumuthu District" with headquarters at Theni. There are two Revenue Divisions (Uthamapalayam and Periyakulam) and five taluks (Bodinayakkanur,

Periyakulam, Theni, Uthamapalayam and Andipatti) in Theni district (Fig 2 & 3). There are 6 Municipalities and 22 Town Panchayats. Theni district consists of 8 Community Development Blocks and 98 Revenue Villages (80 inhabited villages).The table 2.1 shows the number of taluks with a number of towns and Community Development Blocks with a number of villages in Theni district.

Table 2.1 Administrative Division

Name of Taluk	Towns	Name of CD Block	No of Villages	Inhabited Villages
Bodinayakanur	4	Andipatti	18	18
Periyakulam	6	Kadamalaikundru-Myladumparai	4	4
Theni	3	Periyakulam	13	13
Uthamapalayam	14	Theni	10	10
Andipatti	1	Bodinayakanur	12	12
		Chinnamanur	13	13
		Uthamapalayam	7	7
		Kambam	2	2
		Not under any CD Block	19	1

Fig.2- Taluk Location Map of Theni District

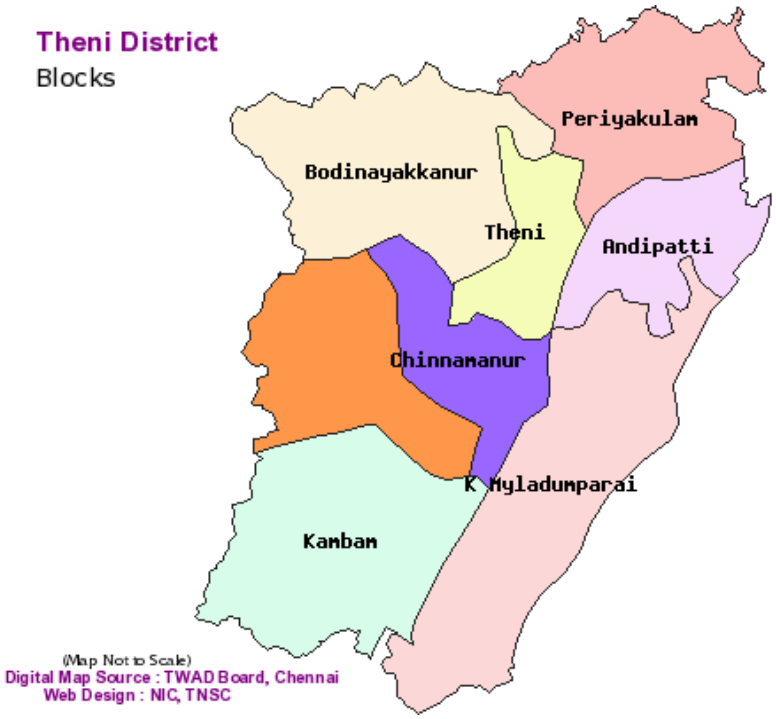

Fig.3- Blocks in Theni District

2.4 Demographic profile

2.4.1 Population

The population status of the district is discussed in Table.2.2. It could be seen from the table that the population of the district is 12.45 lakhs and the proportion of male and female is 50.25 per cent and 49.75 per cent, respectively. Table 2.2 depicts the rural and urban divide of the district which shows a different picture with an urban population dominating with 53.83 per cent of the total population as compared to 46.17 per cent rural population.

Table.2.2. Population of Theni District (2011 census)

Taluk/Municipalities	Area (Sq.Km)	Persons	Male	Female
Theni	201.97	199983	100352	99631
Andipatti	916.90	212700	107856	104844
Periyakulam	381.03	217358	109907	107451
Bodinaickanur	804.33	180789	90426	90363
Uthamapalayam	938.07	435069	217142	217927
Name of the Municipality				
Theni	22.23	94453	47244	47209
Periyakulam	21.10	42976	21345	21631
Bodinaickanur	19.33	75675	37498	38177
Chinnamanur	25.95	42305	21081	21224
Cumbum	6.58	68090	33848	34242
Gudalur	32.00	41915	20895	21020
Total Rural	**3155.11**	**670481**	**334803**	**335678**
Total Urban	**127.19**	**575418**	**290880**	**284538**
Dist. Total	**3242.30**	**1245899**	**625683**	**620216**

***Source**: Office of the Deputy Director of Statistics, Theni*

Table 2.3 Block wise - Area, Population, Sex wise particulars details (2011)

Sl. No	Name of the block	Area (Sq. Km.)	Number of Households	Population (in No's)		
				Persons	Male	Female
1	Andipatti	271,94	29,827	1,11,000	56,040	54,960
2	Kadamalaikundru-Myladumparai	536,66	21,563	74,413	38,192	36,221
3	Periyakulam	264,75	27,208	1,02,741	52,232	50,509
4	Theni	137,68	20,411	74,493	37,343	37,150
5	Bodinayakanur	453,03	19,875	70,621	35,491	35,130
6	Chinnamanur	177,70	15,078	56,522	28,542	27,980
7	Uthamapalayam	111,70	14,894	58,647	29,671	28,976
8	Kambam	35,31	7,855	26,957	13,356	13,601
	Total	**1,988,77**	**156,711**	**361653**	**290,867**	**284,527**

Source: *Census of India 2011, District census handbook* Theni

2.4.2 Literacy level

The Block wise literacy rate during the year 2011 is presented in Table 2.4. Out of the 8 blocks, Theni has the maximum literacy rate (80 % of male and 68 % of female) followed by the both Utamapalayam and Cumbam (78 % of male and 65 % of female respectively).

Table 2.4 Block wise literacy level in the district (2011)

Sl. No	Name of the block	Literacy rate		SC population (%)	ST Population (%)
		Male (%)	Female (%)		
1	Theni	80	68	24	0.02
2	Andipatti	75	59	24	0.05
3	K Myladumparai	67	51	23	0.39
4	Periyakulam	76	63	27	0.20
5	Bodinayakanur	77	62	17	0.38
6	Chinnamanur	76	62	21	1.03
7	Uthamapalayam	78	65	20	0.00
8	Cumbam	78	65	11	0.14

Table 2.5 Literacy Rate by Resident and Sex (in numbers)

Sl. No	Taluk name	Total Literacy			Rural			Urban		
		Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
1	Andipatti	136329	77768	58561	115403	66504	48899	20926	11264	9662
2	Theni	148172	80153	68019	51788	28928	22860	96384	51225	45159
3	Periyakulam	151321	83524	67797	67943	38211	29732	83378	45313	38065
4	Bodinayakanur	126106	69748	56358	45826	26202	19624	80280	43546	36734
5	Uthamapalayam	308152	168210	139942	95690	53725	41965	212462	114485	97977
	District Total	870080	479403	390677	376650	213570	163080	493430	265833	227597

Source: *Census of India 2011*

Table 2.6 Literacy Level in Theni District in block level

Sl. No	Name of the Block	Persons	Male	Female
1	Andipatti	71,670	40,901	30,769
2	Kadamalaikundru-Myladumparai	43,733	25,603	18,130
3	Periyakulam	67,943	38,211	29,732
4	Theni	51,788	28,928	22,860
5	Bodinayakanur	45,826	26,202	19,624
6	Chinnamanur	36,685	20,848	15,837
7	Uthamapalayam	41,404	23,050	18,354
8	Kambam	17,592	9,820	7,772
	Total	**376,641**	**213,563**	**163,078**

Source: *Census of India 2011, District census handbook* Theni

2.4.3 House holds

Table 2.7 Block wise house hold details of Theni district

Sl. No	Name of the block	Number of Households	Number of households with SC as head	Number of households with ST as head
1	Andipatti	29,827	7,848	22
2	Kadamalaikundru-Myladumparai	21,563	4,821	78
3	Periyakulam	27,208	6,591	75
4	Theni	20,411	6,771	1
5	Bodinayakanur	19,875	3,655	173
6	Chinnamanur	15,078	3,739	2
7	Uthamapalayam	14,894	2,435	-
8	Kambam	7,855	1,105	3
	Total	**156,711**	**36,965**	**354**

Source: *Census of India 2011, District census handbook* Theni,

2.4.4 Working population

Table 2.8 presents the population by categories of workers in Theni district. The workers population formed 47 per cent of the total population. Agricultural labours formed the highest proportion of 47 per cent among the main workers. Other workers apart from agriculture and household industry formed a significant proportion of 42 per cent of the total population.

Table 2.8. District Population by Categories of Workers

Sl. No.	Categories of workers	District	
		Persons	% to total workers
1	Total main workers Marginal workers	530591 61061	90% 10%
a	Cultivators	36371	6%
b	Agricultural Labourers	275585	47%
	Household Industry and Manufacturing, processing, servicing and repairs	12714	2%
	Other Workers	205921	42%
	Total Workers	591642	47%
	Non Workers	654257	53%
Total Population		**1245899**	100

Source: *census of India 2011*

Table 2.9. Block wise Workforce in the Theni district

(Numbers)

Sl. No	Blocks	Cultivators	Agricultural labours	House hold industry workers	Other workers	Marginal workers	Total workers
1	Andipatti	5,583	29,523	1,573	10,951	9,871	61,827
2	Kadamalaikundru-Myladumparai	4,872	23,671	509	4,164	7,734	42,400
3	Periyakulam	3,932	25,214	738	11,006	4,221	47,827
4	Theni	2,974	19,507	789	8,539	3,190	37,689
5	Bodinayakanur	3,521	20,025	904	7,398	3,925	38,246
6	Chinnamanur	2,682	21,033	484	2,948	3,345	31,444
7	Uthamapalayam	1,772	17,703	511	3,999	4,872	30,357
8	Kambam	657	11,230	325	1,286	1,224	15,221
9	**Total**	**25,993**	**167,906**	**5,833**	**50,291**	**38,382**	**305,011**

Source: *Census of India 2011, District census handbook* Theni

2.5 Topography

Theni district consists of five taluks, namely 1.Theni, 2.Periyakulam, 3.Andipatti, and 4. Uthamapalayam and 5.Bodinaickanur, Theni district comprises 5 Taluks, 8 Blocks and 183 Villages. As regards the hierarchy of administrative arrangement, there are 5 Municipalities, 23 Town Panchayats and 130 Village Panchayats in the district. Red loam soil is the predominant soil type in this district accounting for 37.48%, followed by red sandy soil of 14.53%. The other types of soils are lateritic soil, black soil, and sandy soil.

2.6 Soil type

The major soil types prevalent in Theni district are red loam, black soil and sandy clay loam. (Table.2.10).Dominant soil types in the Theni district are red loam, lateritic soil, black soil, red sandy soil and other soils including forest soils. Of the different types of soils prevalent in the district, the red loam soil is predominant and it accounts for nearly 51 per cent of the total soils in the district. The other major types of soils are red sandy soils (18.5 per cent) and lateritic soils (12 per cent). The different types of soils are favourable for growing diversified crops across the district.

Table 2.10. Soil Classification in Theni District

Sl. No.	Type of Soil	Places in District
1.	Red Loam	Aundipatti,Theni,,Periyakulam, Bodinayakanur and Uthamapalayam
2.	Laterite Soil	Aundipatti,Theni,,Periyakulam, Bodinayakanur and Uthamapalayam
3.	Black Soil	Aundipatti,Theni,,Periyakulam, Bodinayakanur and Uthamapalayam
4.	Sandy Coastal Alluvial	--Nil--
5.	Red Sandy Soil	Aundipatti, Periyakulam, and Uthamapalayam
6.	Calcareous Soil	Aundipatti,Theni,,Periyakulam, Bodinayakanur and Uthamapalayam
7	Clay Soil	Aundipatti,Theni,,Periyakulam, Bodinayakanur and Uthamapalayam
8	Alluvial Soil	Cumbum Valley

Source: *Office of the Deputy Director of Statistics, Theni*

THENI DISTRICT SOIL LEGEND

Legend

- DEEP, CLAYEY SKELETL, MIXED, ALFISOLS
- DEEP, CLAYEY SKELETL, MIXED, INCEPTISOL
- DEEP, COARSE LOAMY, MIXED, ALFISOLS
- DEEP, COARSE LOAMY, MIXED, INCEPTISOL
- DEEP, COARSE LOAMY, MIXED, MOLLISOLS
- DEEP, CONTRASTING PARTICLE SIZE, MIXED, ENTISOLS
- DEEP, FINE LOAMY, MIXED, ALFISOLS
- DEEP, FINE LOAMY, MIXED, INCEPTISOL
- DEEP, FINE, MIXED, ALFISOLS
- DEEP, FINE, MIXED, INCEPTISOL
- DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- MODERATELY DEEP, FINE LOAMY, MIXED, ALFISOLS
- MODERATELY DEEP, FINE LOAMY, MIXED, INCEPTISOL
- MODERATELY DEEP, FINE, MIXED, ALFISOLS
- MODERATELY DEEP, FINE, MIXED, INCEPTISOL
- MODERATELY DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- MODERATELY SHALLOW, CLAYEY SKELETL, MIXED, ALFISOLS
- MODERATELY SHALLOW, CLAYEY SKELETL, MIXED, INCEPTISOL
- MODERATELY SHALLOW, FINE LOAMY, MIXED, ALFISOLS
- MODERATELY SHALLOW, FINE LOAMY, MIXED, ENTISOLS
- MODERATELY SHALLOW, FINE LOAMY, MIXED, INCEPTISOL
- MODERATELY SHALLOW, FINE, MIXED, ALFISOLS
- MODERATELY SHALLOW, FINE, MIXED, INCEPTISOL
- SHALLOW, CLAYEY SKELETL, MIXED, ALFISOLS
- SHALLOW, CLAYEY SKELETL, MIXED, INCEPTISOL
- SHALLOW, CLAYEY, MIXED, ALFISOLS
- SHALLOW, CLAYEY, MIXED, INCEPTISOL
- SHALLOW, CLAYEY, MIXED, ULTISOLS
- SHALLOW, LOAMY SKELETL, MIXED, ALFISOLS
- SHALLOW, LOAMY SKELETL, MIXED, INCEPTISOL
- SHALLOW, LOAMY, MIXED, ALFISOLS
- SHALLOW, LOAMY, MIXED, ENTISOLS
- SHALLOW, LOAMY, MIXED, INCEPTISOL
- VERY DEEP, COARSE LOAMY, MIXED, INCEPTISOL
- VERY DEEP, COARSE LOAMY, MIXED, MOLLISOLS
- VERY DEEP, FINE LOAMY, MIXED, ALFISOLS
- VERY DEEP, FINE, MIXED, ALFISOLS
- VERY DEEP, FINE, MIXED, INCEPTISOL
- VERY DEEP, FINE, MIXED, MOLLISOLS
- VERY DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- VERY DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- VERY DEEP, VERY FINE, MONTMORILLONITIC, VERTISOLS
- Very SHALLOW, CLAYEY SKELETL, MIXED, ENTISOLS
- Very SHALLOW, LOAMY, MIXED, ENTISOLS
- WATERBODY / SETTLEMENT / MISCELLANEOUS LANDFORM

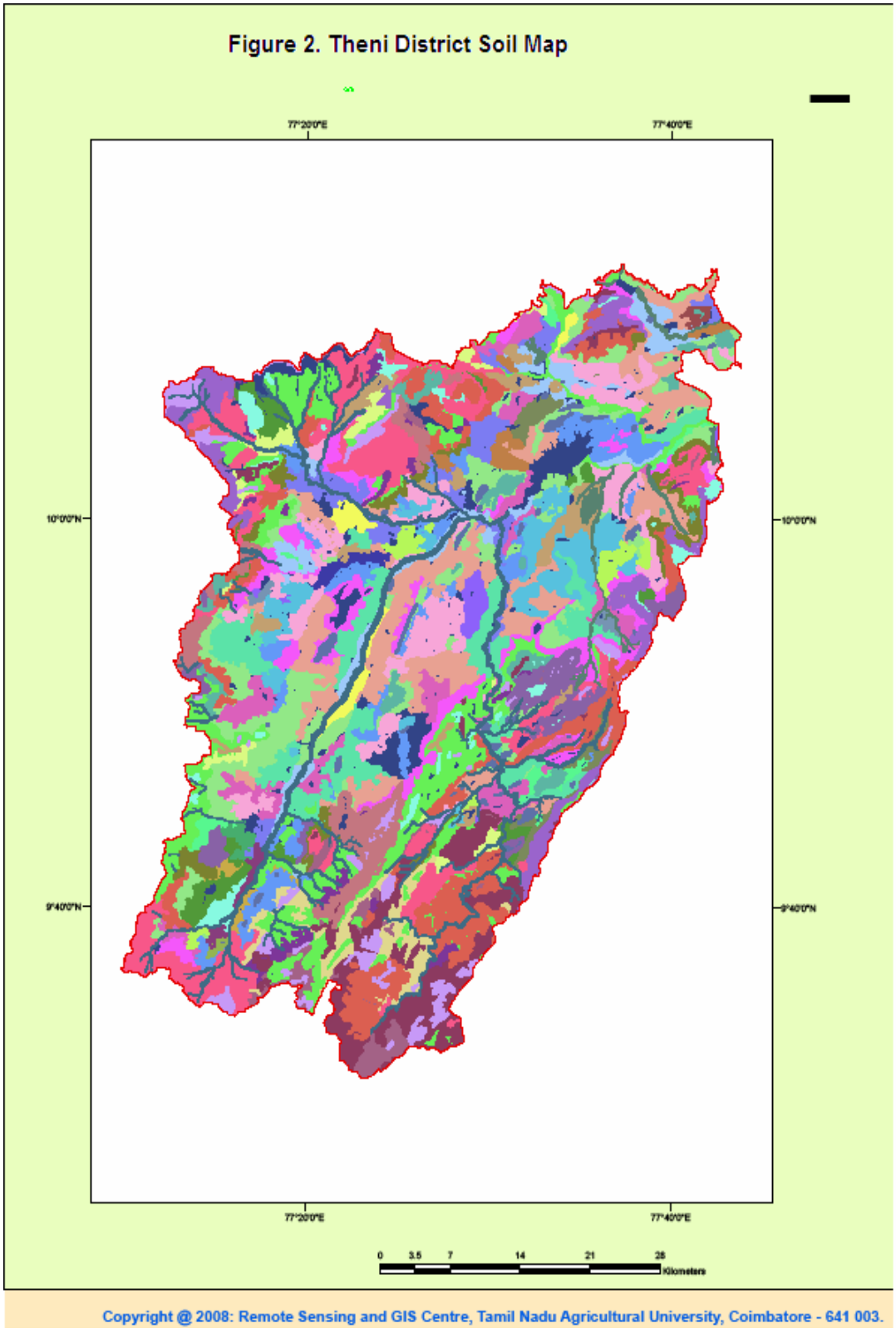

Fig.4. Soil map of Theni district

2.7 Climatic Condition and Rainfall

The 2,889 km^2 (1,115 sq m) district lies at the foot of the Western Ghats between 9' 39' and 10' 30' North latitude and between 77' 00' and 78' 30' of East Longitude. Central location: 10°04′N 77°45′E. The district is bounded by Dindigul District to the north, Madurai District to the east, Virudhunagar District to the southwest, and Idukki district of the Kerala State to the west. The district is home to Theni, Periyakulam,Bodinayakanur, Cumbum, Uthamapalayam,Kombai, Gudalur, Chinnamanur and Andipatti. In the plains, the temperature ranges from a minimum of 19.94 °C to a maximum of 39.5 °C. In the hills the temperatures can range from as low as 4-5 °C to 25 °C. The district is known for its salubrious climate, hills and lakes.The Vaigairiver, Kottagudiriver, Suruliyarriver, Varaganathiriver, Manjalarriver and Varattaruriver flow through the district. The important reservoirs in the district are VaigaiDam, ManjalaruDam, SothuparaiDam, SanmughanathiDam, ManalaruDam and Melmanalaru Dam.

Table 2. 11 Month wise / season wise temperature and humidity in the district

Year	Mean Maximum temp °C	Mean Minimum temp °C	Humidity	
2014	**Actual**	**Actual**	**8.30 hrs.**	**17.30 hrs.**
June	35.47	27.18	N.A	N.A
July	34.73	25.98	N.A	N.A
August	34.06	25.79	N.A	N.A
September	35.43	26.73	N.A	N.A
October	32.23	22.94	82.85	79.19
November	32.10	22.47	80.12	66.47
December	31.74	21.60	74.69	51.74
2015				
January	32.82	19.94	79.28	51.74
February	33.54	29.05	76.58	51.68
March	34.85	23.37	72.68	52.63
April	36.85	25.37	69.87	54.60
May	37.10	26.58	66.48	59.57

(Source: Season and Crop Report (2014-15),

In Table 2.12 reveals that the total rainfall of the district is 680.10 mm. The North-East monsoon accounts for the highest proportion of 299.7mm of the total rainfall followed by the South-West monsoon with 159.5mm. Summer rainfall received in the district is 176.30mm.

Table.2.12 Rainfall of Theni District

Season / Month	2012-2013		2014-15	
	Normal	Actual	Normal	Actual
South West Monsoon				
June	22	35.3	29	22
July	32.6	34.2	73.2	32.6
August	33.3	66.1	137.5	33.3
September	70.5	23.9	63	70 .5
Total	**158.4**	**159.5**	**302.7**	**87.9**
North East Monsoon				
October	167.7	199.3	272.9	167.7
November	139	80.6	79.8	139
December	51.2	19.8	46	51.2
Total	**357.9**	**299.7**	**398.7**	**357.9**
Winter Season				
January	16	0.32	6.1	16
February	19.4	44.4	12.6	19.4
Total	**35.4**	**44.72**	**18.7**	**35.4**
Hot Weather				
March	35.4	63.5	44.6	35.4
April	73.4	43	169.6	73.4
May	59.5	69.8	173.6	59.5
Total	**168.3**	**176.3**	**387.8**	**168.3**
Annual rainfall	**720**	**680.1**	**1107.9**	**720**

***Source**: Season and Crop report 2014-2015*

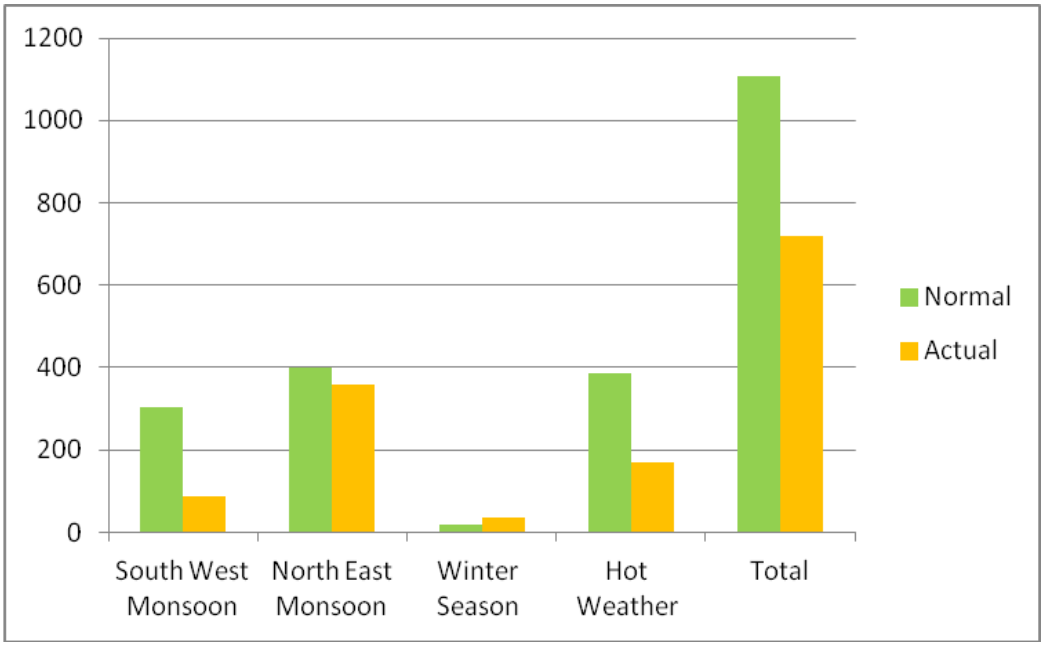

Fig. 5.Average Rainfall of Theni District 2014-15

2.8 Land

2.8.1 Land and its Types

The land use pattern of Theni district is presented in Table 2.13. It could be seen from the table that the total geographical area of the district is 3.24 lakh hectares and net sown area occupied 34.71 per cent. Land put to non-agricultural uses formed 7.59 per cent of total area. Other fallow lands occupied 7.93 per cent of total area which has to be put under plough by suitable technological interventions. Forest occupied 31.99 per cent of total area. Moreover, permanent pastures and miscellaneous tree crops occupied meager proportions. The block wise details given in Table 2.14.

Table 2.13 Land Use Pattern

Sl.No	Particulars	2014-15	%
1	Geographical Area	324230	100
2	Forest	103718	31.99
3	Barren & Unculturable Area	43319	13.36
4	Land Put to Non-agricultural Uses	24616	7.59
5	Permanent Pastures & Other grazing lands	315	0.10

Sl.No	Particulars	2014-15	%
6	Misc.tree crops & groves not incl. in the net area sown	1250	0.39
7	Current Fallow	9881	3.05
8	Other Fallow	25712	7.93
9	Net area sown	112555	34.71
10	Area sown more than once	14841	4.58
11	Gross area sown	127396	39.29

Source: Season and Crop Report 2014-2015

Table 2.14 Block wise land use pattern

Sl. No.	Classification	Andipatti	K.Myladumparai	Periyakulam	Theni	Bodinayakanur	Chinnamanur	Uthama palayam	Cumbum
1	Forest	781.160	35633.4	3085.000	501.935	26221.770	3698.86	1774.77	16097
2	Barren and Uncultivable uses	914.350	225.0	4243.000	929.230	0	696.18	3628.75	822.685
3	Land put to Non-Agricultural uses	2700.230	2748.175	6131.000	2876.320	1852.690	2090.31	2103.98	1272.905
4	Cultivable Waste	361.935	73.05	716.000	406.965	433.970	566.63	215.77	90.640
5	Permanent pastures and other Grazing Land	6.000	176.00	0	49.000	2.900	70.30	0	8.000
6	Land Under Miscellaneous Tree Crops and Gross not included in Net Area Sown	57.700	57.195	244.000	76.750	0	318.16	103.93	182.345
7	Current Fallow	3034.825	149.525	2367.333	10.775	782.730	1646.67	379.78	186.535
8	Other Fallow Land	3613.875	549.09	3926.000	2555.405	2558.000	3954.51	3953.50.0	5190.920
9	Net Area Sown	14028.050	15028.495	17392.000	9623.150	18602.000	10830.62	9424.54.0	15805.880
10	Total Geographical Area according to village papers	27193.635	62875.93	38103.000	1778.200	80433.220	28176.20	25948.08.0	28585.500
11	Area Sown More Than Once	489.470	1733.910	1081.000	19742.50	705.000	1514.88	2189.67	1993.440
12	Total Cropped Area	14517.050	16762.405	18663.000	1912.150	19307.000	9552.10	11616.22	17472.950
13	Irrigated Area Net	7834.260	6736.305	9852.000	11535.30	20881.000	10145.50	6700.000	9002.240
14	Irrigated area Gross	8264.005	6736.305	10125.000	12742	21586.000	12512	7918.000	11138.030

B1- Andipatti, B2- Kadamalaikundru-Myladumparai, B3- Periyakulam, B4- Theni, B5- Bodinayakanur, B6- Chinnamanur, B7- Uthamapalayam, B8- kambam

2.8.2 Land Holdings Pattern of Farmers

The number of operational land holdings in Theni district is presented in Table 2.15. It could be inferred from the table that the district has more marginal and small holdings with size of land holding below two hectares.

Table 2.15 Number and size of Operational Land Holdings in Theni District

Sl. No.	Size Class of Holdings (Hectares)	Numbers
1	Below 0.50.0	53428
2	0.50.0 to 1.00.0	35491
3	1.00.0 to 2.00.0	26415
4	2.00.0 to 3.00.0	6751
5	3.00.0 to 4.00.0	2547
6	4.00.0 to 5.00.0	1230
7	5.00.0 to 7.50.0	1194
8	7.50.0 to 10.00.0	447
9	10.00.0 to 20.00.0	419
10	20.00.0 & Above	159
	Total	**128081**

Source: *Office of the Deputy Director of Statistics, Theni*

Table 2.16. Block wise land holding pattern in the district (Latest year)

Sl. No.	Size class (ha)	B1	B2	B3	B4	B5	B6	B7	B8
1	upto 0.5	16035	6020	2952.61	1986	11350	1224	6355	1178
2	0.5-1. 0	0	0	4794.735	2830	3047	3625	3980	2579
3	1. 0-2. 0	4121	3247	5959.725	2668.5	2033	2485	2431	38
4	2. 0-3. 0	0872	778	2738.475	1240.5	410	1810	539	2050
5	3. 0-4. 0	498	316	1369.145	1908	225	1305	207	1374
6	4. 0-5. 0	125	127	663.98	359	280	965	93	867
7	5. 0-7.5	102	131	870.58	174.5	385	810	95	1574
8	7.5-1 0. 0	99	62	625.995	306	245	227	36	740
9	10.0-20.0	21	73	709.105	308.5	134	242	30	863
10	2 0. 0 & Above	16	42	811.005	285.5	20	195	8	3770

B1- Andipatti, B2- Kadamalaikundru-Myladumparai, B3- Periyakulam, B4- Theni, B5- Bodinayakanur, B6- Chinnamanur, B7- Uthamapalayam, B8- kambam

2.9 Sources of Irrigation

The irrigation statistics of the district are presented in Table.2.17 and 2.18. It could be seen from the table that open wells rank first with a proportion of 37470 ha of the irrigated area followed by Tube/ bore wells with 10889 ha, Canals with 10012 ha and tanks with 1579 ha. The block wise details of water supply are given in Table 2.19.

Table 2.17 Number and Source of Irrigation

Sl.No.	Particulars		Numbers	Area (in ha)
1	Canals	Gross	107	14987
		Net		10012
2	Tanks	Gross	150	1648
		Net		1579
3	Tube wells / Bore wells	Gross		11735
		Net		10889
4	Open wells	Gross		44851
		Net		37470
5	Supplementary wells	Gross		98
		Net		98
6	Other Sources	Gross		0
		Net		0

Source: *Office of the Deputy Director of Statistics, Theni*

Table 2.18 Area Irrigated by Different Sources

(in hectare)

Sl.No.	Particularls		2012-13	2013-14	2014-15	Average
1	Canals	Gross	12293	13891	14987	13723.67
		Net	9049	9708	10012	9589.67
2	Tanks	Gross	1442	1610	1648	1566.67
		Net	1440	1541	1579	1520.00
3	Tube wells / Bore wells	Gross	9192	10050	11735	10325.67
		Net	8948	9589	10889	9808.67
4	Open wells	Gross	50010	47683	44851	47514.67
		Net	45489	40851	37470	41270.00
5	Supplementary wells	Gross	98	98	98	98.00
		Net	98	98	98	98.00
6	Other Sources	Gross	0	0	0	0.00
		Net	0	0	0	0.00

Source: *Office of the Deputy Director of Statistics, Theni*

Table 2.19 Sources of Water Supply –Block Wise

Name of the Block	Canals No.	Length (Km.)	Wells used for irrigation purpose only	Tube Wells	Wells used for Domestic Purpose only	River/Dam/ Canal		System Tanks		Non System Tanks	
						Major/ Minor	Small	Tanks (Nos.) 40 Hec Above	Tanks (Nos.) Below 40 Hec	Tanks (Nos.) 40 Hec Above	Tanks (Nos.) Below 40 Hec
Theni	17	42	3609	290	734	18	13	2	14	3	14
Andipatti	1	5	3897	131	592	-	1	4	17	4	17
K.Myladumparai	1	6	2007	123	712	-	55	2	17	120	226
Periyakulam	31	51	4564	898	608	2509	1238	9	10	511	540
Bodinayakanur	34	43	25	470	2442	23	46	-	42	-	-
Chinnamanur	5	18	2839	804	282	47	-	1	18	1	62
Uthamapalayam	3	11	3410	23	486	10	-	1	29	1	21
Cumbum	15	50	1820	1221	557	18	-	-	-	18	-
Total	**107**	**226**	**22171**	**3960**	**6413**	**2625**	**1353**	**19**	**147**	**658**	**880**

(Source: Season and Crop Report, 2014-15)

2.10 Cropping Pattern

2.10.1 Area under different crops and varieties grown

Area, Production and productivity of major crops are given in Table 2.21. It reveals that Coconut is the predominant crop of the district with an area of 19981 ha. The other important crops are Paddy, Maize and Cholam with an area of 12220.67, 9376 ha and 8006 ha respectively. Among the pulses, Red gram is the most important crop. Sugarcane occupied 5866 ha while cotton is 1791 ha. The above pattern is an indication of lack of irrigation facilities in this district. The productivity of the crops is low. It is only 4.6 tonnes/ha in paddy and around 763 kg/ha in pulses. This indicates the importance of extension in improving the adaptation of improved technologies in the cultivation of crops.

Table 2.20 Area, production and productivity of Major Crops

Sl.No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
1	Paddy	12220.67	56783.67	4625.00
2	**Maize**	**9376.67**	**75704.67**	**8111.67**
3	Cholam	8006.67	25072.00	3065.33
4	**Cumbu**	**1708.00**	**3982.00**	**2500.33**
5	Ragi	60.00	210.67	3259.33
6	**Red Gram**	**1753.00**	**2113.33**	**1165.33**
7	Black Gram	727.33	558.67	766.67
8	**Green Gram**	**989.67**	**561.33**	**527.33**
9	Horse Gram	498.33	310.00	594.67
10	**Groundnut**	**1831.33**	**6749.33**	**1981.33**
11	Sunflower	207.67	304.33	1098.33
12	**Gingelly**	**1359.67**	**778.00**	**418.33**
13	Castor	133.00	47.33	239.33
14	**Cotton**	**1791.00**	**7255.67**	**444.00**
15	Coconut	19981.00	2367.00	7845.67
16	**Sugarcane**	**5866.67**	**645258.67**	**67.00**
17	Tobacco	7.67	16.67	1468.67

Sl.No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
18	Onion	860.67	8580.00	9761.67
19	Brinjal	353.33	3184.00	9034.00
20	Bhendi	249.67	1819.00	7361.33
21	Cabbage	122.67	4867.33	40005.33
22	Tomato	2001.33	23190.33	11655.33
23	Banana	6016.33	395851.00	65810.00
24	Mango	9529.67	35441.67	3722.33
25	Jack Fruit	49.33	635.33	12870.67
26	Guava	276.67	1679.00	6151.67
27	Grapes	1759.00	25218.00	14321.00
28	Orange	41.67	199.67	4932.00
29	Chillies	288.33	125.67	438.33
30	Ginger	0.67	2.67	1412.00
31	Pepper	66.00	20.00	303.33
32	Cloves & Cinnamon	2.67	2.00	235.00
33	Coriander	140.67	70.00	439.67
34	Turmeric	63.33	251.33	3829.33
35	Tamarind	1946.00	5709.67	2934.00
36	Tapioca	789.00	36818.33	45753.00
37	Sweet Potato	0.67	13.33	6642.67
	Total	**91076.00**	**1371751.67**	**285791.00**

(Source: Season and Crop Report, 2014-15)

Details of major food and vegetable crops are given in Table 2.22 and 2.23. Details of block wise area under different crops are shown in Table 2.24 and 2.25.

Table 2.21. Details of area production & productivity of Major agricultural crops in the blocks (Triennium ending average 2014-15)

		Area (Ha)					Production (in tonnes)					Productivity (in kg / ha)				
Sl. No	Particular	2012-13	2013-2014	2014-2015	Total	Average	2012-13	2013-2014	2014-2015	Total	Average	2012-13	2013-2014	2014-2015	Total	Average
1	Paddy	10321	12499	13842	36662	12220.67	47635	50813	71903	170351	56783.67	4615	4065	5195	13875	4625.00
2	Maize	9355	10583	8192	28130	9376.67	57910	91010	78194	227114	75704.67	6190	8600	9545	24335	8111.67
3	Cholam	6401	7744	9875	24020	8006.67	18849	19468	36899	75216	25072.00	2945	2514	3737	9196	3065.33
4	Cumbu	2504	1144	1476	5124	1708.00	4124	2820	5002	11946	3982.00	1647	2465	3389	7501	2500.33
5	Ragi	55	102	23	180	60.00	173	377	82	632	210.67	2502	3701	3575	9778	3259.33
6	Total Cereals	28677	32108	33495	94280	31426.67	128720	164524	192139	485383	161794.33				0	0.00
	Total	**57313**	**64180**	**66903**	**188396**	**62798.67**	**257411**	**329012**	**384219**	**970642**	**323547.33**	**17899**	**21345**	**25441**	**64685**	**21561.67**

Table 2.22. Details of area production & productivity of Major Vegetable crops in the blocks (Triennium ending average 2014-15)

		Area (Ha)					Production (in tonnes)					Productivity (in kg / ha)				
Sl. No	Particulars	2012-13	2013-2014	2014-2015	Total	Average	2012-13	2013-2014	2014-2015	Total	Average	2012-13	2013-2014	2014-2015	Total	Average
1	Onion	576	894	1112	2582	860.67	4915	9230	11595	25740	8580.00	8534	10324	10427	29285	9761.67
2	Brinjal	272	391	397	1060	353.33	2510	3510	3532	9552	3184.00	9228	8978	8896	27102	9034.00
3	Bhendi	191	286	272	749	249.67	1521	1937	1999	5457	1819.00	7962	6772	7350	22084	7361.33
4	Cabbage	181	113	74	368	122.67	7287	4096	3219	14602	4867.33	40261	36248	43507	120016	40005.33
5	Tomato	1654	2208	2142	6004	2001.33	20128	20463	28980	69571	23190.33	12169	9268	13529	34966	11655.33
6	Other Vegetables	7736	9540	9836	27112	9037.33	0			0	0.00				0	0.00
	Total	**10610**	**13432**	**13833**	**37875**	**12625.00**	**36361**	**39236**	**49325**	**124922**	**41640.67**	**78154**	**71590**	**83709**	**233453**	**77817.67**

Table 2.23 Block wise area, production and productivity of Horticultural crops in Theni district

Sl. No	Crops	Chinnamanur			Periyakulam			Uthamapalayam			Theni		
		Area	Productivity	Production	Area	Productivity	Production	Area	Productivity	Production	Area	Productivity	Production
	Horticulture Crops												
1	Banana	1320.00	95040.00	72000.00	0.00	0.00	0.00	651.00	99.00	64449.00	619.20	75.00	46440.00
2	Mango	148.00	1.43	9.64	0.00	0.00	0.00	94.60	13.00	1228.00	386.74	14.00	5414.36
3	Vegetables	1300.00	13270.00	17251.00	0.00	0.00	0.00	0.00	0.00	0.00	327.02	60.00	19621.20
4	Coconut	2100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1570.05	8000.00	12560400
5	Grapes	450.00	14350.00	6457.50	0.00	0.00	0.00	0.00	0.00	0.00	11.05	18.00	198.90
6	Sunflower	0.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Gingelly	0.00	0.00	0.00	776.00	0.00	419.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Lime	0.00	0.00	0.00	0.00	0.00	0.00	3.00	30.00	90.00	0.00	0.00	0.00
9	Sapota	0.00	0.00	0.00	0.00	0.00	0.00	15.30	23.10	353.40	65.00	20.00	1300.00
10	Guava	0.00	0.00	0.00	0.00	0.00	0.00	22.20	11.10	245.60	49.98	25.00	1249.50
11	Tomato	0.00	0.00	0.00	0.00	0.00	0.00	400.00	31.50	12587.00	285.55	35.00	9994.25
12	Beet Root	0.00	0.00	0.00	0.00	0.00	0.00	90.00	23.10	2077.00	3.97	15.50	61.54
13	Radish	0.00	0.00	0.00	0.00	0.00	0.00	16.40	20.70	339.00	0.00	0.00	0.00
14	Beans	0.00	0.00	0.00	0.00	0.00	0.00	71.50	7.00	497.70	49.24	7.50	369.30
15	Cocoa	0.00	0.00	0.00	0.00	0.00	0.00	9.60	1.00	9.60	9.39	1.50	14.09
16	Cashewnut	0.00	0.00	0.00	0.00	0.00	0.00	168.00	0.50	79.00	59.24	0.45	26.66
17	Papaya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.59	100.00	2259.00
18	Aonla	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.70	10.00	687.00
19	Pomegranate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	4.00	3.56
20	Limes and Lemons	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.43	10.00	214.30
21	Jack fruit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	12.00	8.88
22	Onion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.55	9.80	720.79
23	Tapioca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.66	4.66	21.72

Sl. No	Crops	Chinnamanur			Periyakulam			Uthamapalayam			Theni		
		Area	Productivity	Production	Area	Productivity	Production	Area	Productivity	Production	Area	Productivity	Production
24	Leafy vegetable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	2.00	5.60
25	Okra	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.37	12.00	448.44
26	Brinjal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.52	21.00	850.92
27	Bitter gourd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.67	15.00	55.05
28	Bottle gourd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.29	21.00	174.09
29	Cucumber	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.11	15.00	436.65
30	Cabbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	25.00	38.50
31	Cauliflower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.27	20.00	525.40
32	Green chilli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.51	25.00	387.75
	Spices												
33	Other spices (Curry leaf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.63	5.40	84.40
34	Tamarind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.17	0.20	11.63
35	Turmeric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.12	15.00	76.80
	Flowers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
36	Chrysanthemum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29	25.00	57.25
37	Jasmine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.65	6.50	121.23
38	Rose	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.20	2.50	53.00
39	Other flowers (Crossandra)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.49	2.80	37.77

Table 2.24 Block wise area, production and productivity of Agricultural crops in Theni district

Sl. No	Crops	Chinnamanur			Periyakulam		Uthamapalayam			Theni		
		Area	Productivity	Production	Area	Production	Area	Productivity	Production	Area	Productivity	Production
	Agricultural Crops											
1	Paddy	2835.00	19646.55	6930.00	820.00	4292.00	1990.00	6.80	13532.00	2051.00	6.80	13946.00
2	Maize	2310.00	18988.20	8220.00	1107.00	4760.00	340.00	10.30	3485.00	2482.00	10.30	25564.00
3	Cholam	1400.00	6034.00	4310.00	902.00	3066.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Cumbu	180.00	286.20	1590.00	101.00	232.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Cowpea	700.00	609.00	870.00	631.00	377.00	190.00	0.90	175.75	0.00	0.00	0.00
6	Redgram	250.00	460.00	1840.00	132.00	124.00	250.00	1.20	304.25	113.00	1.20	135.00
7	Groundnut	200.00	454.00	2270.00	155.00	512.00	460.00	3.80	1760.42	0.00	0.00	0.00
8	Sugarcane	110.00	13.97	127.00	2760.00	204240.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Greengram	400.00	448.00	1120.00	203.00	131.00	130.00	1.00	130.91	401.00	1.00	401.00
10	Blackgram	100.00	95.00	950.00	196.00	105.00	0.00	0.00	0.00	352.00	316.00	0.90
11	Other Pulses	150.00	93.00	620.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Other Millet	110.00	122.10	1110.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Cotton	0.00	0.00	0.00	289.00	520.00	0.00	0.00	0.00	0.00	0.00	0.00
14	Ragi	0.00	0.00	0.00	90.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Varagu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Mochai	0.00	0.00	0.00	45.00	41.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Horsegram	0.00	0.00	0.00	35.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Sorghum	0.00	0.00	0.00	0.00	0.00	1100.00	5.00	5500.00	909.00	5.00	4545.00

2.10 Consumption of Chemical Fertilizers and Pesticides

An important and crucial input in agricultural production is the consumption of fertilizer and use of plant protection chemicals is necessary to increase agricultural productivity and production. The total fertilizers consumption was 10578 tonnes during 2012-2013. Of the total fertilizers, nitrogenous, phosphatic and potassic fertilizers use is significant. Equally, pesticides in the form of dust and liquid forms are being used siginifically to enhance agricultural production (Table 2.25)

Table 2.25 Consumption of Chemical Fertilizers and Pesticides

Fertilizers (in M.Tonne)				Pesticides		Urea (in M.T)
Nitrogenous (N)	Phosphate (P_2O_5)	Pottassic (K_2O)	Total (NPK)	Dust (M.T.)	Liquid (Lit.)	
6230	2696	1652	10578	13	23500	--

Source: *Joint Director of Agriculture, Theni.*

2.12 Agricultural Engineering - Machineries and Implements

Farm mechanization is crucial to perform various operations in time and to manage growing labour scarcity. The use of farm machinery and implements in Theni district shows that around 4189 numbers of ploughs are being used in the agricultural sector (Table 2.26).

Table 2.26 Farm Mechanization in Theni District

Sl. No	Item	(In Number)
1	**Ploughs**	
	a) Wooden	2378
	b) Iron	1811
	c) Total	**4189**
2	**Water Pumps for Irrigation Purpose**	
	a) Worked by Oil Engine	1403
	b) Worked by Electric Power	6244
	c) Total	**7647**
3	**Tractors**	
	a) Government	980
	b) Private	
	c) Total	**980**
4	**Sugarcane Crushers**	

Sl. No	Item	(In Number)
	a) Worked by Power	27
	b) Worked by Bullocks	197
	c) Total	**224**
5.	**Oil Ghanis**	
	a) 5 Kg. & above	64
	b) Less than 5 Kg.	
	c) Total	**64**

Source: *Based on 17th Quinquennial Livestock Census*

2.13 Agricultural Marketing and Regulated Markets

The regulated markets details in Theni district are furnished in Table 2.29. The regulated markets are required to create adequate infrastructural facilities like, grading, packing and storing the produces at different production centres of the district. It is also suggested that the farmers are to make use of the several benefits such as subsidized seeds, fertilizers, plant protection chemicals, machineries and tools, extended through various agricultural development programmes. They should also come forward to adopt the good agricultural practices and technologies developed by the agricultural research institutes.

There are totally seven regulated markets in Theni district. Seven storage godowns have been established in Theni district to facilitate marketing of agricultural commodities.Four transaction sheds, two drying yard are present in Theni district. Cold Storage and Banana Ripening Chamber and Grapes cold storage with Market complex are present in this district. These can be strengthened to increase the agricultural production in the district.

2.14 Storage Facilities

The details of storage facilities available in Theni district are presented in Table 2.28. Storage facilities were available in Andipatti, Bodi, Periyakulam, Uthamapalayam and theni blocks. 10 lakh tonnes capacity storage godowns are necessary to store the agriculture commodities.

Table 2.27 Distribution of Godowns across Blocks in Theni District

Sl. No	Name and address of Agricultural Godowns
1	Tamil Nadu Ware Housing Corporation Ltd. Godown Vaigaidam Road. Andipatti
2	Tamil Nadu Ware Housing Corporation Ltd. Godown Kurangani Road. Bodi
3	Tamil Nadu Ware Housing Corporation Ltd. Godown Nallakarupanpatti. Periyakulam
4	Tamil Nadu Ware Housing Corporation Ltd. Godown Kombai Road. Uthamapalayam
5	Tamil Nadu Ware Housing Corporation Ltd. Godown Bodi Road. Theni

***Source**: District warehousing office*

Cold storage godowns in Theni district is listed in Table 2.28. Three cold storage godowns are located in Theni, among which two is for tamarind.

Table 2.28. List of Cold Storage and Godowns

Name and address of the cold storage
1. For Tamarind Theni, Near Collectorate
2. For Tamarind – OMS G.vilakku
3.Eastern Condiments, Bodi Road. Theni

Table.2.29. Basic details of Theni Market Committee and Regulated Markets

Sl. No	Name of the Regulated Markets	Area in acres		Rural Godowns			Transaction sheds		Drying Yard			Weigh Bridg	Electronic Weighing machine	Cold Storage and Banana Ripening Chamber
		Total area	Building area	Nos.	Capacity (MT)	Under RIDF Scheme	Nos.	Total area (in sqm)	No.	Area (in sqm)	Under NADP Scheme			
1	Head Office	-	494 Sq.M	-	-	-	-	-	-	-	-	-	-	-
Regulated Markets														
1	Theni	9.48	3.48	3	1500	2000MT Godown is being constructed	1	350	1	400	-	-	1	25MT Cold storage to be constructed in the current year
2	Cumbum	6.90	1.90	1	500	2000MT Godown is being constructed	1	350	1 1	400 400	1-400Sqm 28.10.2011	1	1	25MT Cold storage to be constructed in the current year
3	Chinnamanur	7.75	1.75	1	300	2000MT Godowntobe constructed in the current year	1	210	1 1	400 400	1-400Sqm 28.10.2011	-	-	5MT Banana Ripening Chamber
	Velliammalpuram	2	0.75	-	-		-	-	-	-	-			50MT
						-								Grapes cold storage with Market complex
4	Bodinayakanur	9.58	1.58	-	-	-	1	150	1	400	-	-	-	-

Sl. No	Name of the Regulated Markets	Area in acres		Rural Godowns			Transaction sheds		Drying Yard			Weigh Bridg	Electronic Weighing machine	Cold Storage and Banana Ripening Chamber
		Total area	Building area	Nos.	Capacity (MT)	Under RIDF Scheme	Nos.	Total area (in sqm)	No.	Area (in sqm)	Under NADP Scheme			
5	Andipatti @ thangammalpuram	2.96	0.96	2	1000	-	-		-	-	-	-	-	-
6	Uthamapalayam													
7	Periyakulam													
	Total	38.67	10.42	7			4	1060	2	800		1	2	

2.15 Sericulture

The area and production of mulberry of different blocks were given in Table 2.30. The total area under mulberry in the district was 387.10 hectares. Of which, Bodinayakanur block holds the area of 94.60 ha. Next to this is the Myladumparai block which posses 90.00 ha area of mulberry. The district produced 254720.8 kg of Cocoon for a value of 91206.768 lakhs.

Table 2.30. Mulberry and Cocoon production in the blocks

Name of the block	Area under Mulberry (Ha)	Production of Cocoons in Kg.	Value (Rs. in Lakhs)
Theni	30.8	20960.7	7965.066
Myladumparai	90.0	50440.0	18158.400
Andipatti	38.7	27060.0	9471.000
Periyakulam	68.0	13022.9	4818.140
Bodinayakanur	94.6	67036.2	25473.756
Uthamapalayam	17.8	22150.6	5759.156
Cumbum	17.0	20650.0	7537.250
District	**387.1**	**254720.8**	**91206.768**

Source: *Assistant Director of Sericulture, Theni*

2.16 Animal husbandry and Dairy development

2.16.1 Livestock population

The total livestock and poultry populations are furnished in the Table 2.31. There are 106319 numbers of cattle in the district. The other livestock's such as sheep (56636 no's) and goat (94625 no's). The poultry population (484151 no's) are also present. The block wise details are given in Table 2.32. The Block wise details of milk yield gap were given in Table 2.33 and the infrastructure facilities available in Theni district is given in Table 2.34.

Table 2.31 Livestock population in the district

(Numbers)

Sl.No.	Particulars	Population
1	Cattle	106319
2	Buffaloes	2434
3	Sheep	56636
4	Goats	94625
5	Horses and ponies	135
6	Donkeys	245
7	Camels	0
8	Pigs	4044
	Total Livestock	**264438**
9	Elephants	0
10	Dogs	19038
11	Rabbits	515
	Poultry	
12	Back yard Poultry	219564
13	Farm Poultry	264587
	Total Poultry	**484151**

Source: 19th Livestock Census, 2012.

Table 2.32 Block wise livestock population of Theni district

Sl. No.	Livestock	B1	B2	B3	B4	B5	B6	B7	B8	District
1	Cattle	12972	11956	7083	17131	9891	16786	16729	3918	96466
2	Buffalo	485	696	1785	2312	2095	686	4044	820	12923
3	Sheep	8925	6445	2703	9979	7477	5774	5770	3303	50376
4	Goat	9664	8516	3624	15124	18839	8050	6936	1700	72453
5	Pigs	352	65	418	1172	670	997	665	18	4357
6	Poultry	19839	44000	9797	95096	3285	154796	103300	4108	434221
7	Others	1577	4036	689	3866	2199	15646	2357	623	30993

B-1 Andipatty, B-2 Bodinayakanur, B-3, Chinnamanur, B-4 Cumbam, B-5 Kadamadaikundu Mayiladumparai, B-6 Periyakulam, B-7 Theni, B-8 Uthamapalayam

Table 2.33. Block wise Yield gap in Milk Yield and reasons for yield gap

Sl. No	Type of Animal	Andipatty			Bodi			Chinnamanur			Cumbam		
		Potential	Acutual	Reason	Potential	Acutual	Reason	Potential	Acutual	Reason	Potential	Acutual	Reason
1	**Cows**												
	a.Local	1976	988	Low availability of grazing land	650	250	Infertility	256	96	Low availability of grazing land	198600	105920	Improper feeding due to high cost.
	b.Cross breed	178155	95016		141585	7170		127780	81114				
2	**Buffalo**												
	a.Local	-	-	Low availability of grazing land	7875	5250	Mastitis	20100	12600	Low availability of grazing land	26085	13912	Improper feeding due to high cost.
	b.Cross breed	6615	3528		-	-		-	-		-	-	

Sl. No	Type of Animal	Kadamadaikundu Mayiladumparai			Periyakulam			Theni			Uthamapalayam		
1	Cows	Poten -tial	Acutual	Reason	Potential	Acutual	Reason	Poten -tial	Acutua l	Reason	Poten -tial	Acutual	Reason
	a.Local			Low availability of grazing land			Low availability of grazing land	8824	3390	Improper feeding due to high cost.	46140	24608	Low availability of grazing land
	b.Cross breed	120180	64096		238440	127168		178095	94984				
2	**Buffalo**												
	a.Local			Low availability of grazing land			Low availability of grazing land			Improper feeding due to high cost.	6585	3512	Low availability of grazing land
	b.Cross breed	18330	9776		9120	4864		57210	30512				

Table 2.34. Infra structure facilities available in Theni district

Sl. No		B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	District
1	Dairy co-operative Society	Yes	25	48	25	130	62	55	15	360
2	Veterinary clinics	11	6	4	5	4	1	5	5	41
	a.Veterinary Hospital	-	-	-	-	-	-	-	-	-
	b.Veterinary Dispensary	-	-	-	-	-	-	-	-	-
	c.Sub Centre	-	-	-	-	-	-	-	-	-
	d.Profile unit	-	-	-	-	-	-	-	-	-
3	Milk Collection Centre	40	30	50	-	130	25	55	15	345
	a.Bulk Milk Cool	-	-	-	-	-	-	-	-	-

B-1 Andipatty, B-2 Bodinayakanur, B-3, Chinnamanur, B-4 Cumbam, B-5 Kadamadaikundu Mayiladumparai, B-6 Periyakulam, B-7 Theni, B-8 Uthamapalayam

2.16.2 Veterinary institutions and hospitals

The different blocks in the district hold veterinary hospitals and dispensaries. There are 3 Government hospitals and 26 dispensaries and 68 sub centers. Theni, periyakulam and bodinayakanur blocks has one Government hospitals each. The blocks such as Nallampalli, Pennagaram and Karimangalam has 6 dispensaries each for the welfare of the livestock. More than 44061 animals were treated in all these veterinary hospitals and institutions through which the farming community gets benefitted. About 3893 castrations were performed during the year 2012-13. The details on veterinary institutions, hospitals and animals treated block wise are presented in Table 2.35.

Table 2.35 Veterinary institutions and hospitals in the district

Name of the block	Veterinary institutions		
	Hospital	Dispensaries	Sub-centers
Theni	1	4	9
Andipatti	-	3	7
K.Myladumparai	-	4	4
Periyakulam	1	4	10
Bodinayakanur	1	3	12
Uthamapalayam		3	11
Chinnamanur		2	8
Cumbum		3	7
Total	**3**	**26**	**68**

Source: Joint Director (Animal Husbandry), Theni

2.16.3 Dairy development

The dairy development in the district is given in Table 2.36. The district produces 98320 and 70253 litres of milk per day in flush season and lean season. The total quantity of milk produced in the district is 850000 liters. The quantities of milk production are achieved from 429 milk societies for the value of 15.72 lakhs per day on an average.

Table 2.36 Dairy development in the districts

No. of milk societies	Quantity of milk Produced (In Lakhs of Litres)	Value of milk produced in Rs.lakhs	Milk produced (In lit.)	
			Flush season (lit/day)	Leanseason (lit/ day)
429	0.85	15.72	98320	70256

http://www.theni.tn.nic.in/statistics/animal.html

2.16.4 Poultry development

The districts possess a maximum number of poultry farms as layers. Chinnamanur block has the highest number of broiler farms with 87900 birds. 87800 birds are located in the Cumbum block followed by the Bodinayakanur block which occupies 81100 numbers. K.Myladumparai block had the lowest number of poultry birds in the district (56500). The details on poultry production are given in Table 2.37.

Table 2.37. Poultry development in the district

Sl. No.	Name of the Block	Broiler (No in lakhs)
1.	Periyakulam	69800
2.	Theni	82400
3.	Andipatti	77300
4.	K.Myladumparai	56500
5.	Chinnamanur	87900
6.	Uthamapalayam	69700
7.	Cumbum	87800
8.	Bodinayakanur	81100
	Total	**612500**

Source: *Joint Director (Animal Husbandry), Then*

2.17 Fisheries

Theni being an inland district, fishing is restricted to inland only. Main varieties of fish available are katla, rogu, mirgal, common and corp. The district possesses 2 inland fishing centres viz, Vaigai dam and Manjalar Dam with a capacity of 4584 tonnes fish catchment with the value of Rs.14 lakh/year. The details of inland fishing in theni are presented in Table 2.38.

Table 2.38. Fisheries status in the district

1.Area			
a. Total Coastal Line of the District	Not Applicable		
b. i. Total Inland Fresh Water spread Area	6387 Ha		
ii. Estuaries and Back Water Area	NIL		
c. Marine Fishing Villages	NIL		
2. Fish Production	Item	(Quantity Tonne)	Value (Rs.in lakhs)
		4584	Rs.14.00 Lakhs

***Source**: Assistant Director of Fisheries (Inland Fishing), Theni*

2.18 Banking and Insurance

In total there are 59 government banks and 48 scheduled banks. Cooperative banks and TIIC took a major share in financing to agriculture followed by commercial banks in Theni district. Majority of the institutions are located in Theni, Periyakulam, Chinnamanur and Cumbam blocks of Theni district. The details of deposits, advances, credit deposit ratio and credit details are presented in Table 2.39.

Table 2.39 Credit Institutions in Theni District (2012-13)

Items/ No.of Branches	Deposits (In. 000Rs.)	Advances (In. 000 Rs.)	Credit Deposit Ratio	Credit Details (In. 000 Rs.)
Government Banks - 59	13229392	26064548	197	Agri- 39558723 SME- 2256398 EL- 2314228 SHG- 1800222 WSA- 9376484
Scheduled Banks - 48	6493371	9735978	150	
Co-operative Banks	1357487	3154467	232	
TIIC	1347	110440	81	

Source: District Manager, Lead Bank Office, Theni.

Insurance scheme

The details of policies issued, sum assured and amount paid for compensation are presented in Table 2.40.

Table 2.40 Insurance schemes in the district

Name of the Insurance	No. of Branches	Policies Issued	Sum Assured (Rs.in Crores)	No. of Beneficiaries	Amount paid as compensation (Rs.in lakhs)
L.I.C .of India	2	14982	200.66		
New India Insurance	1	9800			

Source: LIC, Periyakulam and Uthamapalayam Branaches, and New India Insurance.

2.19 Co-operation

The different types of co- operative institution including credit cooperative and marketing co-operative society's function in Theni district during 2012-2013 are given in Table 2.41.

Table 2.41 - Cooperative institution functioning in Theni district during 2012-2013.

Sl. No.	Type of Societies	No. of Societies	Member-ship	Share Capital/	Working Capital	Govt. Share	Loans Advanced (Outstanding and Overdue)	Over due	No. of Employees
				Rs. in lakhs					
1	Dist. Central Co-operative Bank	--	--	--	--	--	--	--	--
2	Primary Agri. Co-operative Bank	80	2,52,225	1856.03	30479.40	38.02	9355.00	5.76	555
3	Primary Land Development Bank	04	24,946	130.49	1581.01	18.06	1370.55	350.31	13
4	Primary Co-operative urban Bank	02	19,590	100.83	1983.69	--	2247.61	64.56	10
5	Housing co-operative societies	26	64,254	330.05	4019.28	3.50	3513.40	10169.74	148
6	Primary Co-operative Stores	09	27,456	12.00	164.97	--	7.60	--	117
7.	Employees Co-op. thrift and Credit society	16	6,357	724.04	5484.19	--	5231.62	224.20	32
8.	District Wholesale Stores	--	--	--	--	--	--	--	--
9.	Co-operative Marketing Societies	02	41,794	231.47	783.36	210.00	199.00	--	104
10.	Urban Coop Society	02	18,658	50.24	1541.13	--	2711.34	109.69	10
11.	Weavers co-operative societies	13	2,312	34.55	126.70	1.63	--	42.78	26
12	Cooperative student stores	--	Liquidated						

Source: Joint Registrar (Co-operative), Theni.

2.20 Industries

The registered small scale industries in the district are presented in Table 2.42. The industries in the district provide employment for the rural societies and helps in the improvement of economic status of the people. The industry comprised of food based, textile based, animal husbandry, chemical based, electrical and electronic based etc. The industrial parks situated in Theni provide scope for the employment opportunities in and around the district.

Table 2.42. Industrial development in the district

Sl. No.	Name of the Product	No. of Factories
1	Food Products	91
2	Cotton Textiles	89
3	Wool, Silk, Synthetic Fibre	23
4	Jute, Hemp and Mesta	-
5	Hosiery and Garments	23
6	Wood Products	-
7	Non Metalic (Mineral Products)	-
8	Machinery and Parts	02
9	Paper Products and Printing	05
10	Basic Chemicals and Products	03
11	Leather products	-
12	Rubber & Plastic Products	06
13	Basic Metal industries	-
14	Metal Product	01
15	Electricity & apparatus	05
16	Transport Equipment &part	15
17	Misc.Manufacturing Industries	24

Source: *Inspector of Factories, Theni*

CHAPTER III

DEVELOPMENT OF AGRICULTURAL AND ALLIED SECTOR

The action plan for enhancing the agricultural production includes the following components:

3.1 Trends in area, production and productivity of major crops

3.2 Projection on area, production and yield by 2023

3.3 Yield gap analysis

3.4 Projected yield and production of selected of crops

- 3.4.1 Paddy
- 3.4.2 Groundnut
- 3.4.3 Sugarcane
- 3.4.4 Maize
- 3.4.5 Cholam
- 3.4.6 Coconut
- 3.4.7 Cotton
- 3.4.8 Cumbu
- 3.4.9 Banana
- 3.4.10 Mango
- 3.4.11 Grapes
- 3.4.12 Tomato
- 3.4.13 Bhendi
- 3.4.14 Cashewnut
- 3.4.15 Drumstick
- 3.4.16 Cardamom

3.1 Trends in area, production and productivity of major crops

The cropping pattern and compound growth rate of area, production and yield of major crops and also for which the time series data available from 1997-98 was worked out and presented in the Table below. The growth in area, production and yield were found out by using the exponential growth function of the form

$$Y = a\, b^t\, e_t$$

where,

Y = Dependent variable (Area. Production and Yield)

t = Time variable

e_t = Error term and a and b are unknown constants to be estimated

The annual growth rates of area for the period between 2005-2015 for the selected major crops were estimated and they were -2.51 per cent for paddy 1.24 per cent for Maize, -5.92 per cent for Cholam, -4.14 per cent for Sugarcane, -10.34 per cent for Cumbu, -2.49 per cent for Groundnut, 3.25 per cent for coconut and 6.21 per cent for Banana. The annual growth rates of area for Horticultural crops were 1.94 per cent for Mango,-2.66 per cent for Tomato, and 3.60 per cent for grapes.

Table 3.1 Area Production and Yield of Major crops in Theni district

(Triennium average ending 2014-2015)

Sl.No	Crop	Area	%	Production	Yield (kg/ha)
1	Paddy	12221	15.08	56784	4625
2	Cholam	8007	9.88	25072	3065
3	Cumbu	1708	2.11	3982	2500
4	Maize	9377	11.57	75705	36752
5	Greengram	990	1.22	561	527
6	Redgram	1753	2.16	2113	1165
7	Sugarcane	5867	7.24	645259	109
8	Banana	6016	7.42	395851	65810
9	Mango	9530	11.76	35442	3722
10	Grapes	1759	2.17	N.A	N.A
11	Tomato	2001	2.47	23190	12679
12	Groundnut	1831	2.26	6749	3719
13	Coconut	19981	24.66	N.A	N.A
	Total	**81040**	**100.00**		

Table.3.2 Compound Growth Rate of Area, Production and Productivity under major crops in Theni District

		CGR during 2005-2006 to 2014-2015 (%)		
Sl.No	Crops	Area	Production	Yield
1	Paddy	-2.51	3.88	2.35
2	Cholam	-5.92	3.29	2.13
3	Cumbu	-10.34	2.41	2.03
4	Maize	1.24	3.90	2.74
5	Green gram	26.84	1.29	1.39
6	Red gram	-3.14	2.00	1.78
7	Sugarcane	-4.14	5.86	0.97
8	Banana	6.21	5.28	3.90
9	Mango	1.19	3.55	2.30
10	Grapes	-1.76	N.A	N.A
11	Tomato	-0.34	3.15	2.77
12	Groundnut	-2.49	2.42	2.09
13	Coconut	3.25	N.A	N.A

N.A denotes Not Available

3.2 Projection on area, production and yield by 2023

3.3 Yield gap analysis

The yield gap analysis and projection of production of identified major crops are discussed in this section. The yield gap analysis is given in the first table. The overall yield gap is obtained by deducting the average yield from the potential yield.

The second table portrays the growth rate of major crops worked out by zeroing the yield gap with average yield that is yield gap/ average yield. The annual growth rate is then worked out by dividing the required growth rate by the number of years to reach 2022-23 from 2010-11 (the basic year) that is twelve. The third table presents the projected yield from 2011-12 by multiplying the basic yield in 2010-11 with the growth rate of each year. The fourth table projects a simple calculation of doubling the production with the existing yield. The final fifth table gives the projected production from 2011-12 to 2022-23 by multiplying the area with the projected yield from the third table. The analysis is done variety wise and then summed up for the crop.

The above said methodology is followed for all the crops and the results are presented in five tables for all the identified crops. A brief discussion is provided at the end for each crop.

3.4 Projected yield and production of selected of crops

3.4.1. Paddy

PADDY

Table 3.3.Yield Gap (kg /ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
ADT 45			1935
Koraknath			2564
ADT 36			562
CO- 43			2754

Table 3.4. Growth Rate (%)

Ruling Varieties	ADT 45	Koraknath	ADT 36	CO- 43
Potential Yield kg/ha	8000	10352	8366	7954
Progressive farmer yield				
Average Yield kg/ha	6065	7788	7804	5200
Overall Yield Gap	1935	2564	562	2754
Required Growth Rates	31.90	64.10	15.61	67.17
Annual Growth Rate	2.66	5.34	1.30	5.60

Table 3.5 Projected Yield (kg/ha)

Sl. No	Year	ADT 45	Koraknath	ADT 36	CO- 43
	2010-11	6065	7788	7804	5200
1	2011-12	6226	8204	7906	5491
2	2012-13	6392	8642	8008	5798
3	2013-14	6562	9104	8113	6123
4	2014-15	6736	9590	8218	6466
5	2015-16	6915	10102	8325	6828
6	2016-17	7099	10642	8433	7210
7	2017-18	7288	11211	8543	7613
8	2018-19	7482	11809	8654	8040
9	2019-20	7681	12440	8767	8490
10	2020-21	7885	13105	8881	8965
11	2021-22	8094	13805	8996	9467
12	2022-23	8310	14542	9113	9997

Table 3.6 Doubling the Production

		Units
Area under Paddy	15355	Ha
Production	74010	tonnes
Yield	4.82	Tonnes/ha
Doubling the production	148020	Tonnes
Yield	9.64	Tonnes/ha

Table 3.7 Projected Production (Tonnes)

	ADT 45	Koraknath	ADT 36	CO- 43	
Proportion of varieties	0.3	0.2	0.4	0.1	1
Area	4606.5	3071	6142	1535.5	15355
2011-12	28681	25195	48556	8432	110863
2012-13	29444	26540	49187	8904	114075
2013-14	30227	27958	49827	9402	117413.8
2014-15	31030	29451	50476	9928	120885.3
2015-16	31855	31025	51132	10484	124495.9
2016-17	32702	32682	51797	11071	128252.1
2017-18	33572	34428	52471	11690	132160.9
2018-19	34464	36267	53154	12345	136229.4
2019-20	35380	38204	53845	13036	140465.5
2020-21	36321	40245	54546	13766	144877
2021-22	37287	42394	55255	14536	**149473**
2022-23	38278	44659	55974	15350	**154261**

The yield gap for paddy in Theni district is 1935 kg/ha in ADT 45 variety, 2564 kg/ha in Koraknath variety, 562 kg/ha in ADT 36 and 2754 kg/ha in CO 43 variety. Bridging the yield gap requires a growth rate of 2.66 per cent per annum in ADT 45, 5.34 per cent per annum for Koraknath, 1.30 per cent for ADT 36 and 5.60 per cent for CO 43 variety. Doubling the paddy production requires a target of 148020 tonnes and the projected production by bridging the yield gap is 154261 tonnes.

3.4.2 Groundnut

Table 3.8 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall Yield Gap
TMV 7			500
VRI 7			500

Table.3.9 Growth Rate (%)

Ruling Varieties	TMV 7	VRI7
Potential Yield kg/ha	1900	2560
Progressive farmer yield		
Average Yield kg/ha	1400	2060
Overall Yield Gap	500	500
Required Growth Rates	35.71	24.27
Annual Growth Rate	2.98	2.02

Table 3.10 Projected Yield (kg/ha)

Sl. No	Year	TMV 7	VRI7
	2010-11	1400	2060
1	2011-12	1442	2102
2	2012-13	1485	2144
3	2013-14	1529	2187
4	2014-15	1574	2232
5	2015-16	1621	2277
6	2016-17	1669	2323
7	2017-18	1719	2370
8	2018-19	1770	2417
9	2019-20	1823	2466
10	2020-21	1877	2516
11	2021-22	1933	2567
12	2022-23	1991	2619

Table 3.11 Doubling the Production

		Units
Area under G.Nut	2616	Ha
Production	4985	tonnes
Yield	1.91	Tonnes/ha
Doubling the production	9970	Tonnes
Yield	3.81	Tonnes/ha

Table 3.12 Projected Production (Tonnes)

	TMV 7	VRI 7	
Proportion of varieties	0.7	0.3	1
Area	1831.2	784.8	2616
2011-12	2640	3848	6488.452
2012-13	2719	3926	6644.762

2013-14	2799	4006	6804.981
2014-15	2883	4086	6969.209
2015-16	2969	4169	7137.552
2016-17	3057	4253	7310.116
2017-18	3148	4339	7487.01
2018-19	3242	4427	7668.348
2019-20	3338	4516	7854.244
2020-21	3437	4607	8044.818
2021-22	3540	4700	8240.192
2022-23	3645	4795	**8440**

The yield gap for groundnut in Theni district is 500 kg/ha. in TMV 7 variety and 500 kg/ ha in VRI 7 variety. Bridging the yield gap requires a growth rate of 2.98 per cent per annum in TMV 7 and 2.02 per cent per annum for VRI 7 variety. Doubling the ground nut production requires a target of 9970 tonnes and the projected production by bridging the yield gap is 8440 tonnes.

3.4.3 Sugarcane

Table 3.13 Yield Gap (tonnes/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
COC 86032			68

Table 3.14 Growth Rate (%)

Ruling Varieties	COC 86032
Potential Yield tonnes/ha	168
Progressive farmer yield	
Average Yield tonnes/ha	100
Overall Yield Gap	68
Required Growth Rates	68
Annual Growth Rate	5.67

Table 3.15 Projected Yield (tonnes/ha.)

Sl. No	Year	COC 86032
	2010-11	100
1	2011-12	106
2	2012-13	112
3	2013-14	118
4	2014-15	125
5	2015-16	132
6	2016-17	139
7	2017-18	147
8	2018-19	155

9	2019-20	164
10	2020-21	174
11	2021-22	183
12	2022-23	194

Table.3.16 Doubling the Production

		Units
Area under Sugarcane	5979	Ha
Production	715878	tonnes
Yield	119.73	Tonnes/ha
Doubling the production	1431756	Tonnes
Yield	239.46	Tonnes/ha

Table.3.17 Projected Production (Tonnes)

	COC 86032	
Proportion of varieties	1	1
Area	5979	5979
2011-12	631781	631781
2012-13	667582	667582
2013-14	705412	705412
2014-15	745385	745385
2015-16	787623	787623
2016-17	832255	832255
2017-18	879416	879416
2018-19	929250	929250
2019-20	981908	981908
2020-21	1037549	1037549
2021-22	1096343	1096343
2022-23	1158470	1158470

The yield gap for sugarcane in Theni district is 68000 Kg./ha. in COC86032 variety. Bridging the yield gap requires a growth rate of 5.67 per cent per annum in COC86032. Doubling the sugarcane production requires a target of 1431756 tonnes and the projected production by bridging the yield gap is 1158470 tonnes.

3.4.4 Maize

Table 3.18 Yield Gap (kg./ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
Pioneer 30 v 92			2404
CBI 808			4325
NK 6240			3333

Table 3.19 Growth Rate (%)

Ruling Varieties	Pioneer 30 v 92	CBI 808	NK 6240
Potential Yield kg/ha	8887	9450	9460
Progressive farmer yield			
Average Yield kg/ha	6483	5125	6128
Overall Yield Gap	2404	4325	3332
Required Growth Rates	37.08	84.39	54.37
Annual Growth Rate	3.09	7.03	4.53

Table 3.20 Projected Yield (kg /ha)

Sl. No	Year	Pioneer 30v92	CBI 808	NK 6240
	2010-11	6483	5125	6128
1	2011-12	6683	5485	6406
2	2012-13	6890	5871	6696
3	2013-14	7103	6284	6999
4	2014-15	7322	6725	7316
5	2015-16	7548	7198	7648
6	2016-17	7782	7704	7994
7	2017-18	8022	8246	8356
8	2018-19	8270	8825	8735
9	2019-20	8526	9446	9130
10	2020-21	8789	10110	9544
11	2021-22	9061	10821	9976
12	2022-23	9341	11581	10428

Table 3.21 Doubling the Production

		Units
Area under Maize	9006	ha
Production	58382	Tonnes
Yield	6.48	Tonnes/ha
Doubling the production	116770	Tonnes
Yield	12.97	Tonnes/ha

Table 3.22 Projected Production (Tonnes)

	Pioneer 30 v 92	CBI 808	NK 6240	
Proportion of varieties	0.4	0.4	0.2	1
Area	3602.4	3602.4	1801.2	9006
2011-12	24076	19760	11538	55373.97

2012-13	24820	21149	12060	58029.72
2013-14	25587	22636	12607	60829.8
2014-15	26378	24227	13178	63782.84
2015-16	27193	25931	13775	66898.05
2016-17	28033	27754	14399	70185.23
2017-18	28899	29705	15051	73654.78
2018-19	29792	31793	15733	77317.81
2019-20	30713	34028	16446	81186.13
2020-21	31662	36420	17191	85272.3
2021-22	32640	38980	17969	89589.71
2022-23	33649	41721	18783	94153

The yield gap for maize in Theni district is 2404 kg/ha. in Pioneer 30V92 variety, 4325 kg/ha for CBI 808 and 3332 kg/ha for NK 6240. Bridging the yield gap requires a growth rate of 3.09 per cent per annum for Pioneer 30V92 7.03 per cent for CBI 808 and 4.53 per cent for NK6240 variety. Doubling the maize production requires a target of 116770 tonnes and the projected production by bridging the yield gap is 94153 tonnes.

3.4.5 Cholam

Table 3.23 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
K3			620
K4			300

Table 3.24 Growth Rate (%)

Ruling Varieties	K3	K4
Potential Yield kg//ha	3750	3500
Progressive farmer yield		
Average Yield kg/ /ha	3130	3200
Overall Yield Gap	620	300
Required Growth Rates	19.81	9.38
Annual Growth Rate	1.65	0.78

Table.3.25 Projected Yield (kg/ha)

Sl. No	Year	K3	K4
	2010-11	3130	3200
1	2011-12	3182	3225
2	2012-13	3234	3250

Sl. No	Year	K3	K4
3	2013-14	3288	3276
4	2014-15	3342	3301
5	2015-16	3397	3327
6	2016-17	3453	3353
7	2017-18	3510	3379
8	2018-19	3568	3406
9	2019-20	3627	3432
10	2020-21	3687	3459
11	2021-22	3748	3486
12	2022-23	3810	3513

Table 3.26 Doubling the Production

		Units
Area under Cholam	10092	ha
Production	31617	tonnes
Yield	3.13	Tonnes/ha
Doubling the production	63234	Tonnes
Yield	6.27	Tonnes/ha

Table 3.27 Projected Production (Tonnes)

	K3	K4	
Proportion of varieties	0.5	0.5	1
Area	5046	5046	10092
2011-12	16055	16273	32328
2012-13	16320	16400	32720
2013-14	16589	16529	33118
2014-15	16863	16658	33521
2015-16	17141	16788	33929
2016-17	17424	16919	34343
2017-18	17712	17051	34763
2018-19	18004	17184	35189
2019-20	18301	17319	35620
2020-21	18604	17454	36058
2021-22	18911	17590	36501
2022-23	19223	17728	36951

The yield gap for cholam in Theni district is 620 kg /ha in K3 variety and 300 kg/ha for K4. Bridging the yield gap requires a growth rate of 1.65 per cent per annum in for K3 and 0.78 per cent for K4 variety. Doubling the cholam production requires a target of 63234 tonnes and the projected production by bridging the yield gap is 36951 tonnes.

3.4.6 Coconut

Table3.28 Yield Gap (Lakh nuts/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
Tall			1122
Tall Dwarf			3122

Table 3.29 Growth Rate (%)

Ruling Varieties	Tall	Tall Dwarf
Potential Yield Nuts/ha	18000	20000
Progressive farmer yield		
Average Yield in Nuts/ha	16878	16878
Overall Yield Gap	1122	3122
Required Growth Rates	6.65	18.50
Annual Growth Rate	0.55	1.54

Table 3.30 Projected Yield (Lakh nuts/ha)

Sl. No	Year	Tall	Tall Dwarf
	2010-11	16878	16878
1	2011-12	17491	17594
2	2012-13	17588	17865
3	2013-14	17685	18140
4	2014-15	17783	18420
5	2015-16	17881	18704
6	2016-17	17981	18992
7	2017-18	18080	19285
8	2018-19	18180	19582
9	2019-20	18281	19884
10	2020-21	18382	20190
11	2021-22	18484	20502
12	2022-23	18587	20818

Table 3.31 Doubling the Production

		Units
Area under Coconut	18715	Ha
Production	3159	lakh nuts
Yield lakh nuts/ha	0.17	lakh nuts/ha
Doubling the production	6318	lakh nuts
Yield lakh nuts/ha	0.34	lakh nuts/ha

Table 3.32 Projected Production (Tonnes)

	Tall	Tall dwarf	
Proportion of varieties	0.6	0.4	1
Area	11229	7486	18715
2011-12	1964	1317	3281
2012-13	1975	1337	3312
2013-14	1986	1358	3344
2014-15	1997	1379	3376
2015-16	2008	1400	3408
2016-17	2019	1422	3441
2017-18	2030	1444	3474
2018-19	2041	1466	3507
2019-20	2053	1489	3541
2020-21	2064	1511	3576
2021-22	2076	1535	3610
2022-23	2087	1558	3645

The yield gap for coconut in Theni district is 1122 nuts//ha in Tall variety and 3122 nuts/ha for Tall Dwarf variety. Bridging the yield gap requires a growth rate of 0.55 per cent per annum for Tall and 1.54 per cent for Tall Dwarf. Doubling the coconut production requires a target of 6318 lakh nuts and the projected production by bridging the yield gap is 3645 lakh nuts.

3.4.7 Cotton

Table 3.33 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
SVPR2			1048
Bt Cotton			174
MCU5			810

Table 3.34 Growth Rate (%)

Ruling Varieties	SVPR2	Bt Cotton	MCU5
Potential Yield kg//ha	2530	2930	1850
Progressive farmer yield			
Average Yield kg/ha	1482	2756	1040
Overall Yield Gap	1048	174	810
Required Growth Rates	70.72	6.31	77.88
Annual Growth Rate	5.89	0.53	6.49

Table 3.35 Projected Yield (kg/ha)

Sl. No	Year	SVPR2	Bt Cotton	MCU5
	2010-11	1482	2756	1040
1	2011-12	1569	2771	1107
2	2012-13	1662	2785	1179
3	2013-14	1760	2800	1256
4	2014-15	1863	2815	1337
5	2015-16	1973	2830	1424
6	2016-17	2089	2845	1517
7	2017-18	2212	2860	1615
8	2018-19	2343	2875	1720
9	2019-20	2481	2890	1832
10	2020-21	2627	2906	1950
11	2021-22	2781	2921	2077
12	2022-23	2945	2936	2212

Table 3.36 Doubling the Production

		Units
Area under cotton	1456	Ha
Production	1004	Tones
Yield	0.69	Tonnes/ha
Doubling the production	2008	Tonnes
Yield	1.38	Tonnes/ha

Table 3.37 Projected Production (Tonnes)

	SVPR2	Bt Cotton	MCU5	
Proportion of varieties	0.2	0.2	0.6	1
Area	291.2	291.2	873.6	1456
2011-12	457	807	323	1586
2012-13	484	811	343	1638
2013-14	512	815	366	1693
2014-15	543	820	389	1752
2015-16	575	824	415	1813
2016-17	608	828	442	1878
2017-18	644	833	470	1947
2018-19	682	837	501	2020
2019-20	723	841	533	2097
2020-21	765	846	568	2179
2021-22	810	850	605	2265
2022-23	858	855	644	2357

The yield gap for cotton in Theni district is 1048 kg/ha for SVPR2, 174 kg/ha for Bt Cotton and 810 kg/ha for MCU5 variety. Bridging the yield gap requires a growth rate of 5.89 per cent per annum for SVPR2, 0.53 per cent for Bt Cotton and 6.49 per cent for MCU5.Doubling the cotton production requires a target of 2008 tonnes and the projected production by bridging the yield gap is 2357 tonnes.

3.4.8 Cumbu

Table 3.38 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
ICMV 221			403
PIONEER 86M52			287
ANGOOR 602			167

Table 3.39 Growth Rate (%)

Ruling Varieties	ICMV 221	PIONEER 86M52	ANGOOR 602
Potential Yield kg//ha	3130	3762	5817
Progressive farmer yield			
Average Yield kg/ha	2727	3475	5650
Overall Yield Gap	403	287	167
Required Growth Rates	14.78	8.26	2.96
Annual Growth Rate	1.23	0.69	0.25

Table 3.40 Projected Yield (kg/ha)

Sl. No	Year	ICMV 221	PIONEER 86M52	ANGOOR 602
	2010-11	2727	3475	5650
1	2011-12	2761	3499	5664
2	2012-13	2795	3523	5678
3	2013-14	2829	3547	5692
4	2014-15	2864	3572	5706
5	2015-16	2899	3596	5720
6	2016-17	2935	3621	5734
7	2017-18	2971	3646	5748
8	2018-19	3008	3671	5762
9	2019-20	3045	3696	5776
10	2020-21	3082	3722	5791
11	2021-22	3120	3747	5805
12	2022-23	3158	3773	5819

Table 3.41 Doubling the Production

		Units
Area under Cumbu	3203	Ha
Production	10361.7	Tones
Yield	3.235	Tonnes/ha
Doubling the production	20723.4	Tonnes
Yield	6.470	Tonnes/ha

Table 3.42 Projected Production (Tonnes)

	ICMV 221	PIONEER 86M52	ANGOOR 602	
Proportion of varieties	0.1	0.4	0.5	1
Area	320.3	1281.2	1601.5	3203
2011-12	884	4483	9071	14437.79
2012-13	895	4514	9093	14501.87
2013-14	906	4545	9116	14566.36
2014-15	917	4576	9138	14631.25
2015-16	929	4608	9160	14696.55
2016-17	940	4639	9183	14762.26
2017-18	952	4671	9206	14828.38
2018-19	963	4703	9228	14894.93
2019-20	975	4736	9251	14961.89
2020-21	987	4768	9274	15029.28
2021-22	999	4801	9297	15097.1
2022-23	1012	4834	9320	15165.35

The yield gap for cumbu in Theni district is 403 kg/ha for ICMV 221, 287 kg/ha for PIONEER for 86 M 52 and 167 kg/ha for ANGOOR 602 variety. Bridging the yield gap requires a growth rate of 1.23 per cent per annum for ICMV 221, 0.69 per cent for PIONEER 86 M 52 and 0.25 per cent for ANGOOR 602. Doubling the cumbu production requires a target of 20723.4 tonnes and the projected production by bridging the yield gap is 15165.35 tonnes.

3.4.9 Banana

Table3.43 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
G9			22000

Table 3.44 Growth Rate (%)

Ruling Varieties	G9
Potential Yield kg/ha	100000
Progressive farmer yield	
Average Yield kg/ha	78000
Overall Yield Gap	22000
Required Growth Rates	28.21
Annual Growth Rate	2.35

Table 3.45 Projected Yield (kg/ha)

Sl. No	Year	G9
	2010-11	78000
1	2011-12	80090
2	2012-13	82237
3	2013-14	84441
4	2014-15	86704
5	2015-16	89027
6	2016-17	91413
7	2017-18	93863
8	2018-19	96379
9	2019-20	98962
10	2020-21	101614
11	2021-22	104337
12	2022-23	107133

Table 3.46 Doubling the Production

		Units
Area under Banana	5965	ha
Production	451311.9	tonnes
Yield	75.66	Tonnes/ha
Doubling the production	902623.8	tonnes
Yield	151.32	Tonnes/ha

Table 3.47 Projected Production (Tonnes)

	G9	
Proportion of varieties	1	1
Area	5965	5965
2011-12	477739	477739
2012-13	490543	490543
2013-14	503689	503689
2014-15	517188	517188
2015-16	531049	531049
2016-17	545281	545281
2017-18	559894	559894
2018-19	574899	574899
2019-20	590307	590307
2020-21	606127	606127
2021-22	622371	622371
2022-23	639051	639051

The yield gap for banana in Theni district is 22000 kg/ha in G9 variety.Bridging the yield gap requires a growth rate of 2.35 per cent per annum for G9. Doubling the banana production requires a target of 902623.8 tonnes and the projected production by bridging the yield gap is 639051 tonnes.

3.4.10 Mango

Table 3.48 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
Bangalora			7020
Neelam			5020

Table 3.49 Growth Rate (%)

Ruling Varieties	Bangalora	Neelam
Potential Yield kg/ha	20000	18000
Progressive farmer yield		
Average Yield kg/ha	12980	12980
Overall Yield Gap	7020	5020
Required Growth Rates	54.08	38.67
Annual Growth Rate	4.51	3.22

Table 3.50 Projected Yield (kg/ha)

Sl. No	Year	Bangalora	Neelam
	2010-11	12980	12980
1	2011-12	13565	13398
2	2012-13	14176	13830
3	2013-14	14815	14276
4	2014-15	15483	14736
5	2015-16	16181	15211
6	2016-17	16910	15701
7	2017-18	17672	16207
8	2018-19	18469	16730
9	2019-20	19301	17269
10	2020-21	20171	17825
11	2021-22	21080	18400
12	2022-23	22030	18993

Table 3.51 Doubling the Production

		Units
Area under Mango	9298	Ha
Production	41448	tonnes
Yield	4.46	Tonnes/ha
Doubling the production	82896	Tonnes
Yield	8.92	Tonnes/ha

Table 3.52 Projected Production (Tonnes)

	Bangalora	Neelam	
Proportion of varieties	0.4	0.6	1
Area	3719.2	5578.8	9298
2011-12	50451	74747	125198
2012-13	52725	77156	129880
2013-14	55101	79642	134743
2014-15	57584	82209	139793
2015-16	60180	84859	145038
2016-17	62892	87594	150485
2017-18	65726	90417	156143
2018-19	68689	93331	162019
2019-20	71784	96339	168123
2020-21	75020	99443	174463
2021-22	78401	102648	181049
2022-23	81934	105957	187891

The yield gap for mango in Theni district is 7020 Kg/ha in Bangalora and 5020 kg/ha for Neelam variety. Bridging the yield gap requires a growth rate of 4.51 per cent per annum for Bangalora and 3.22 per cent for Neelam. Doubling the mango production requires a target of 82896 tonnes and the projected production by bridging the yield gap is 187891 tonnes.

3.4.11 Grapes

GRAPES

Table 3.53 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
Thompson seedless			4000

Table 3.54 Growth Rate (%)

Ruling Varieties	Thompson seedless
Potential Yield kg/ha	36000
Progressive farmer yield	
Average Yield ha/ha	32000
Overall Yield Gap	4000
Required Growth Rates	12.50
Annual Growth Rate	1.04

Table 3.55 Projected Yield (kg/ha)

Sl. No	Year	Thomson seedless
	2010-11	32000
1	2011-12	32333
2	2012-13	32669
3	2013-14	33009
4	2014-15	33352
5	2015-16	33699
6	2016-17	34049
7	2017-18	34404
8	2018-19	34761
9	2019-20	35123
10	2020-21	35488
11	2021-22	35857
12	2022-23	36230

Table 3.56 Doubling the Production

		Units
Area under Grapes	1960	Ha
Production	29927	Tonnes
Yield	15.27	Tonnes/ha
Doubling the production	59854	Tonnes
Yield	30.54	Tonnes/ha

Table 3.57 Projected Production (Tonnes)

	Thompson seedless	
Proportion of varieties	1	1
Area	1960	1960
2011-12	63372	63372
2012-13	64031	64031
2013-14	64697	64697
2014-15	65370	65370
2015-16	66050	66050
2016-17	66737	66737
2017-18	67431	67431
2018-19	68132	68132
2019-20	68841	68841
2020-21	69557	69557
2021-22	70280	70280
2022-23	71011	71011

The yield gap for grapes in Theni district is 4000 kg/ha in Thompson Seedless variety. Bridging the yield gap requires a growth rate of 1.04 per cent per annum for Thompson seedless. Doubling the grapes production requires a target of 59854 tonnes and the projected production by bridging the yield gap is 71011 tonnes.

3.4.12 Tomato

Table 3.58 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
US 3140			3000
PKM 1			3000

Table 3.59 Growth Rate (%)

Ruling Varieties	US 3140	PKM 1
Potential Yield kg//ha	28000	15000
Progressive farmer yield		
Average Yield kg//ha	25000	12000
Overall Yield Gap	3000	3000
Required Growth Rates	12.00	25.00
Annual Growth Rate	1.00	2.08

Table 3.60 Projected Yield (kg/ha)

Sl. No	Year	US 3140	PKM 1
	2010-11	25000	12000
1	2011-12	25250	12250
2	2012-13	25503	12504
3	2013-14	25758	12764
4	2014-15	26015	13030
5	2015-16	26275	13301
6	2016-17	26538	13578
7	2017-18	26803	13860
8	2018-19	27071	14148
9	2019-20	27342	14443
10	2020-21	27616	14743
11	2021-22	27892	15050
12	2022-23	28171	15363

Table 3.61 Doubling the Production

Particulars		Units
Area under Tomato	2500	Ha
Production	23470	Tonnes
Yield	9.39	Tonnes/ha
Doubling the production	46940	Tonnes
Yield	18.78	Tonnes/ha

Table 3.62 Projected Production (Tonnes)

	US 3140	PKM 1	
Proportion of varieties	0.8	0.2	1
Area	2000	500	2500
2011-12	50500	6125	56624.8
2012-13	51005	6252	57257.2
2013-14	51515	6382	57897.29

	US 3140	PKM 1	
2014-15	52030	6515	58545.19
2015-16	52551	6651	59201.01
2016-17	53076	6789	59864.84
2017-18	53607	6930	60536.81
2018-19	54143	7074	61217.02
2019-20	54684	7221	61905.59
2020-21	55231	7372	62602.64
2021-22	55783	7525	63308.28
2022-23	56341	7681	**64023**

The yield gap for tomato in Theni district is 3000 kg/ha in US3140 and 3000 kg/ha for PKM 1 variety. Bridging the yield gap requires a growth rate of 1.0 per cent per annum for US3140 and 2.08 per cent for PKM 1. Doubling the tomato production requires a target of 46940 tonnes and the projected production by bridging the yield gap is 64023 tonnes.

3.4.13 Bhendi

Table 3.63 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
Mahyco 10			1000

Table 3.64 Growth Rate (%)

Ruling Varieties	Mahyco 10
Potential Yield kg//ha	13500
Progressive farmer yield	
Average Yield kg//ha	12500
Overall Yield Gap	1000
Required Growth Rates	8.00
Annual Growth Rate	0.67

Table 3.65 Projected Yield (kg/ha)

Sl. No	Year	Mahyco 10
	2010-11	12500
1	2011-12	12583
2	2012-13	12667
3	2013-14	12752
4	2014-15	12837
5	2015-16	12922

Sl. No	Year	Mahyco 10
6	2016-17	13008
7	2017-18	13095
8	2018-19	13182
9	2019-20	13270
10	2020-21	13359
11	2021-22	13448
12	2022-23	13537

Table 3.66 Doubling the Production

		Units
Area under Bhendi	195	Ha
Production	1637	Tonnes
Yield	8.40	Tonnes/ha
Doubling the production	3274	Tonnes
Yield	16.79	Tonnes/ha

Table 3.67 Projected Production (Tonnes)

	Mahyco 10
Proportion of varieties	1
Area	195
2011-12	2454
2012-13	2470
2013-14	2487
2014-15	2503
2015-16	2520
2016-17	2537
2017-18	2554
2018-19	2571
2019-20	2588
2020-21	2605
2021-22	2622
2022-23	2640

The yield gap for bhendi in Theni district is 1000 kg/ha. in Mahyco 10 variety. Bridging the yield gap requires a growth rate of 0.67 per cent per annum for Mahyco 10 variety. Doubling the bhendi production requires a target of 3274 tonnes and the projected production by bridging the yield gap is 2640 tonnes.

3.4.14 Cashewnut

Table 3.68 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
VRI 3			950

Table 3.69 Growth Rate (%)

Ruling Varieties	VRI 3
Potential Yield kg//ha	1400
Progressive farmer yield	
Average Yield kg//ha	450
Overall Yield Gap	950
Required Growth Rates	211.11
Annual Growth Rate	17.59

Table 3.70 Projected Yield (kg/ha)

Sl. No	Year	VRI 3
	2010-11	450
1	2011-12	529
2	2012-13	622
3	2013-14	732
4	2014-15	860
5	2015-16	1012
6	2016-17	1190
7	2017-18	1399
8	2018-19	1645
9	2019-20	1934
10	2020-21	2275
11	2021-22	2675
12	2022-23	3145

Table 3.71 Doubling the Production

		Units
Area under Cashewnut	5560	Ha
Production	2299	tonnes
Yield	0.41	Tonnes/ha
Doubling the production	4598	Tonnes
Yield	0.83	Tonnes/ha

Table 3.72 Projected Production (Tonnes)

	VRI 3	
Proportion of varieties	1	1
Area	5560	5560
2011-12	2942	2942.102
2012-13	3460	3459.618
2013-14	4068	4068.164
2014-15	4784	4783.754
2015-16	5625	5625.217
2016-17	6615	6614.692
2017-18	7778	7778.217
2018-19	9146	9146.405
2019-20	10755	10755.26
2020-21	12647	12647.11
2021-22	14872	14871.73
2022-23	17488	**17488**

The yield gap for cashew nut in Theni district is 950 kg/ha in VRI 3 variety. Bridging the yield gap requires a growth rate of 17.59 per cent per annum for VRI3. Doubling the cashew nut production requires a target of 4598 tonnes and the projected production by bridging the yield gap is 17488 tonnes.

3.4.15 Drumstick

Table 3.73 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
PKM 1			5000

Table 3.74 Growth Rate (%)

Ruling Varieties	PKM 1
Potential Yield kg//ha	55000
Progressive farmer yield	
Average Yield kg//ha	50000
Overall Yield Gap	5000
Required Growth Rates	10.00
Annual Growth Rate	0.83

Table 3.75 Projected Yield (Kg./ha.)

Sl. No	Year	PKM 1
	2010-11	50000
1	2011-12	50417
2	2012-13	50837
3	2013-14	51260
4	2014-15	51688
5	2015-16	52118
6	2016-17	52553
7	2017-18	52991
8	2018-19	53432
9	2019-20	53877
10	2020-21	54326
11	2021-22	54779
12	2022-23	55236

Table 3.76 Doubling the Production

		Units
Area under Cholam	1848	Ha
Production	65050	tonnes
Yield	35.20	Tonnes/ha
Doubling the production	130100	Tonnes
Yield	70.40	Tonnes/ha

Table 3.77 Projected Production (Tonnes)

	PKM 1	
Proportion of varieties	1	1
Area	1848	1848
2011-12	93170	93170
2012-13	93946	93946.42
2013-14	94729	94729.3
2014-15	95519	95518.71
2015-16	96315	96314.7
2016-17	97117	97117.33
2017-18	97927	97926.64
2018-19	98743	98742.69
2019-20	99566	99565.55
2020-21	100395	100395.3
2021-22	101232	101231.9
2022-23	102075	102075.5

The yield gap for drum stick in Theni district is 5000 kg/ha in PKM 1 variety. Bridging the yield gap requires a growth rate of 0.83 per cent per annum for PKM 1. Doubling the drum stick production requires a target of 130100 tonnes and the projected production by bridging the yield gap is 102075.5 tonnes.

3.4.16 Cardamom

Table 3.78 Yield Gap (kg/ha)

Variety	Yield GAP I	Yield GAP II	Overall YG
Malabar			300
Mysore			300

Table 3.79 Growth Rate (%)

Ruling Varieties	Malabar	Mysore
Potential Yield kg//ha	600	650
Progressive farmer yield		
Average Yield kg//ha	300	350
Overall Yield Gap	300	300
Required Growth Rates	100.00	85.71
Annual Growth Rate	8.33	7.14

Table 3.80 Projected Yield (Kg./ha.)

Sl. No	Year	Malabar	Mysore
	2010-11	300	350
1	2011-12	325	375
2	2012-13	352	402
3	2013-14	381	430
4	2014-15	413	461
5	2015-16	448	494
6	2016-17	485	529
7	2017-18	525	567
8	2018-19	569	608
9	2019-20	617	651
10	2020-21	668	698
11	2021-22	724	748
12	2022-23	784	801

Table 3.81 Doubling the Production

		Units
Area under Cardamom	1505	ha
Production	144	tonnes
Yield	0.10	Tonnes/ha
Doubling the production	288	Tonnes
Yield	0.19	Tonnes/ha

Table 3.82 Projected Production (Tonnes)

	Malabar	Mysore	
Proportion of varieties	0.8	0.2	1
Area	1204	301	1505
2011-12	391	113	504.175
2012-13	424	121	544.8458
2013-14	459	130	588.8099
2014-15	498	139	636.3348
2015-16	539	149	687.71
2016-17	584	159	743.2484
2017-18	633	171	803.2884
2018-19	685	183	868.1963
2019-20	742	196	938.368
2020-21	804	210	1014.232
2021-22	871	225	1096.251
2022-23	944	241	1184.926

The yield gap for cardamom in Theni district is 300 kg/ha. in Malabar variety and 300 kg/ha for Mysore variety. Bridging the yield gap requires a growth rate of 8.33 per cent per annum for Malabar and 7.14 per cent for Mysore. Doubling the cardamom production requires a target of 301 tonnes and the projected production by bridging the yield gap is 1184.926 tonnes.

3.5Technological interventions and strategies to reduce the yield gaps

1. SYSTEM OF RICE INTENSIFICATION

Present strategies in adoption of SRI Technology

- SRI Technology was popularized by approaching individual farmers during the past three years.
- SRI village concept is another effect in which a whole village is adopted and 100% SRI technology is being implemented.

- Critical inputs required for SRI Technology adoption like – wooden / plastic trays, polythene sheet for nursery, leaf colour charts and cono weeder etc.- 50% subsidy cost through NFSM, NADP, SRI Demonstrations, IAMWARM and ATMA schemes.
- State level award is given to an achiever farmer who produced highest yield in SRI cultivation.

Future Strategies to increase SRI Adoption Area and Yield level

- More numbers of SRI technology demonstrations are to be organized in all villages to convince more number of farmers.
- Training to SRI farmers, Planting Laborers and Farm Machinery operators are to be given.
- Village Panchayats which excel in SRI technology adoption may be suitably honoured by announcement of awards.
- Village level SHGs, Farmer Interest Groups and other community organisations like NGO's may be utilized to popularize the benefits of SRI adoption and giving suitable advisory and assistance by hiring of farm implements and machineries.

1. SUSTAINABLE SUGARCANE INITIATIVE (SSI)

The Technologies recommended in SSI are:

1. Planting of single bud seedlings raised in protrays under shade net condition.
2. Wider row / Paired row planting for plant population maintenance in fields.
3. Installation of Drip Irrigation System with Fertigation unit.
4. Fertigation of NPK nutrients as water soluble fertilizer.
5. Intercropping with pulses to increase soil fertility and farm income.

2. MAJOR TECHNOLOGIES FOR HORTICULTURE CROPS IN THENI DISTRICT

- Fertigation
- Plastic mulching
- Protray nursery seedling utilization
- Community nursery
- Using Power operated horticultural implements
- Fertilizer application based on soil testing
- Green house cultivation
- Cultivation of hybrid varieties

Table 3.83 Schemes to be implemented by Department of Agriculture (2012-13, 2013-14 and 2014-15)

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
	ICDP Rice									
1	Distn.of Certified seeds @ Rs.5/Kg.	MT	150	7.500	MT	0	0	MT	0	0
2	Distn.of Power tiller @ Rs.45000/No.	No	3	1.350	No	0	0	No	0	0
3	Distn.ofRotovater @ Rs.20000/No.	No	5	1.000	No	0	0	No	0	0
4	Distn.ofPumpset @ Rs.10000/No.	No	2	0.200	No	0	0	No	0	0
5	Distn.of Sprayer @ Rs.2000/No.	No	30	0.600	No	0	0	No	0	0
6	Distn.ofZerotillseeddril	No	5	1.000	No	0	0	No	0	0
7	Distn.ofSeeddrum @ Rs.2000/No.	No	5	0.100	No	0	0	No	0	0
8	Distn.of Power weeder @ Rs.15000/No.	No	30	4.500	No	0	0	No	0	0
9	Contingencies	L.Rs	0	0.30	L.Rs	0	0	L.Rs	0	0
				16.55		0	0		0	0
	Seed village									
1	Seed distribution	Mt	128	32.60	Mt	101	26.50	Mt	179.40	46.608
2	Farmer training	No	50	7.50	No	30	4.5	Nos	60	9.000
										55.608
	ISOPOM (Maize)									
1	Block demonstration	Nos	40	1.60	Nos	40	1.6	Nos	0	0
2	IPM Demonstration	Nos	2	0.454	Nos	2	0.454	Nos	0	0
3	Pipes for carrying water from source to field	Nos	12	1.80	Nos	12	1.8	Nos	0	0

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
4	Farmer training	No	2	0.30	No	2	0.30	No	0	0
				4.979			4.154			
	ISOPOM (OILSEED)									
1	Purchase of Breeder seed	Qtl	11	0.05	Qtl	4.4	0.198	Qtl	2	0.30
2	Production subsidy	Qtl	280	2.80	Qtl	476	4.76	Qtl	57	0.57
3	Distribution Subsidy	Qtl	250	3.00	Qtl	92	1.104	Qtl	58	0.696
4	Compact Block Demonstration	Nos	25	0.925	Nos	12	0.44	Nos	4	0.30
5	IPM Demonstration	Nos	15	3.402	Nos	2	0.4536	Nos	1	0.267
6	Supply of rhizobium	Ha	1000	1.0	Ha	1500	1.50	Ha	73	0.219
7	Supply of pheromone trap	Ha	4	0.01	Ha	2	0.006	Ha	0	0
8	Distribution of Bio pesticide	Ha	200	0.5	Ha	40	0.10	Ha	6	0.03
9	Supply of weedicide	Ha	4	0.02	Ha	2	0.01	Ha	5	0.025
10	Distribution of manual sprayers	Nos	20	0.16	Nos	6	0.048	Nos	3	0.024
11	Distribution of power sprayers	Nos	30	0.60	Nos	6	0.12	Nos	3	0.114
12	Pipes for carrying water from source to field	Nos	50	7.50	Nos	25	3.75	Nos	11	1.65
13	Supply of MN mixture	Ha	10	0.05	Ha	6	0.03	Ha	0	0
14	Combined Nutrient Spray	Ha	50	0.10	Ha	20	0.02	Ha	0	0
15	Distribution of Sprinkler	Nos	32	2.40	Nos	5	0.375	Nos	4	0.3528
16	Supply of Light traps	Nos	4	0.02	Nos	1	0.0075	Nos	0	0
17	Farmer training	Nos	10	1.50	Nos	10	1.5	Nos	8	1.92
18	IEC activities	L.Rs		0.35					0	0
19	Farm implements							Nos	7	1.23
				24.037			14.4421		0	7.5324
	ISOPOM OILPALM									
1	Drip irrigation	Ha	20	2.0	Ha	50	5.0	Ha	0	0

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
2	Diesel pumpset	Nos	40	4.0	Nos	50	5.0	Nos	0	0
3	III year maintenance subsidy	Ha	113	3.164	Ha			Ha	50	2.00
4	IV year maintenance subsidy	Ha	54.64	1.78263	Ha	41	1.681	Ha	10	0.40
5	IPM for Oilpalm	Ha	100	0.10	Ha	150	0.525	Ha	0	0
6	Harvesting tool	Nos	25	0.625	Nos	15	0.495	Nos	0	0
7	Farmer training	Nos	9	1.035	Nos	9	1.35	Nos	1	0.24
8	Officer training	Nos	1	0.16	Nos	1	0.16	Nos	0	0.2
9	Production incentive	Mt	0	00	Mt	1	0.139	Mt	0	0
10	Oilpalm publicity	L.Rs		1.00	L.Rs		0.10	L.Rs	0	0
11	Contingency	L.Rs		0.10	L.Rs		0.10	L.Rs	0	0
12	Wasteland development	Ha	10	2.0	Ha			Ha		
13	Distribution of planting material	Ha			Ha			Ha	250	20.0
14	I year maintenance	Ha			Ha			Ha	250	10.00
15	II year maintenance	Ha			Ha			Ha	15.5	0.62
16	I year inter cropping							Ha	250	7.5
17	II year inter cropping							Ha	15.5	0.465
18	III year inter cropping							Ha	50	1.50
				15.86663			14.411			42.950
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME – PADDY MISISON									
1	Distribution of certified seed	Mt			Mt	150	7.5	Mt	130	13.0
2	Popularising SRI	Ha	800	24.0	Ha	300	9.0	Ha	0	0
3	Popularization of Machine transplanting							Ha	305	4.58
							16.50			**17.58**
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME – MILLET MISISON									
1	Cropping system based	Nos			Nos	4	0.56	Nos	1	0.15

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
	training									
2	Seed Distribution	Mt			Mt	5	1.625	Mt	0	0
3	District level seminar	Nos			Nos	1	0.50	Nos	0	0
4	Cumbu cluster demonstration	Ha			Ha	1000	30.0	Ha	18	0.54
5	Cumbu seed production subsidy	Mt	6	0.60	Mt			Mt	0	0
6	Publicity	L.Rs		0.10	L.Rs			L.Rs	0	0
				0.70			32.685			**0.69**
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME – PULSES MISISON									
1	Redgram demonstration	Ha	502	43.65	Ha	695	52.125	Ha	500	37.50
2	Farmer training	Nos			Nos	20	2.0	Nos	4	0.40
3	Pulses production subsidy	Mt	57	5.70	Mt	76	11.4	Mt	25	3.75
4	Distribution of Tarpaulin	Nos	28	1.12	Nos	69	2.76	Nos	0	0
5	Red gram seed distribution Synchronised variety	Mt			Mt	0.1	0.05	Mt	0	0
6	2 % DAP foliar spray	Ha	230	1.84	Acre	993	2.5818	Ha	63	0.41
7	Distribution of Pipes carrying water	Ha	28	4.20	Ha	2	0.30	Ha	0	0
8	Distribution of Sprinkler set	Ha			Ha	1	0.075	Ha	0	0
9	Distribution of raingun	Ha	3	0.375	Ha	1	0.15	Ha	0	0
10	Farmers training	Nos			Nos	3	0.30	Nos	0	0
11	Nutritional security in redgram							Ha	851	63.83
12	Precision Farming @ 17500/Ha							Ha	100	17.50
13	Bund cropping - Red gram @750/Ha							Ha	175	1.313
							69.7418			124.70

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME –OILSEED									
1	Gypsum application for groundnut - 50% to the maximum of Rs.750/ha	0	0	0	0	0	0	Ha	80	0.600
2	Distribution of Tractor drawn seed drill	0	0	0	0	0	0	No	1	0.630
3	Distribution of Pipes carrying water - 50% to the maximum of Rs. 15000/Unit of 600m	0	0	0	0	0	0	No	7	1.050
4	Distribution of Tarpaulin - 50% to the maxmium of Rs. 4000/No	0	0	0	0	0	0	No	20	0.800
										3.080
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME –OILPALM AREA EXPANSION									
1	Distribution of planting material	Ha	350	3.50	Ha	200	20.0		0	0
2	Oilpalm area expansion	Ha	350	21.0	Ha	200	12.0		0	0
3	II year maintenance subsidy	Ha	166.64	5.83240	Ha	103	3.605		0	0
4	III year maintenance subsidy	Ha			Ha	134	6.03		0	0
5	Drip irrigation	Ha	4	0.60	Ha	200	19.578		0	0
6	Diesel pumpset	Ha	6	0.60	Ha	165	16.5		0	0
7	Input for intercropping in I year Oilpalm	Ha	10	1.0	Ha	100	10.0		0	0
8	Assistance for INM,IPM and tree guard – I year	Ha	150	7.50	Ha	200	10.0		0	0
9	Input for intercropping in II year Oilpalm	Ha			Ha	60	3.0		0	0

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
10	Input for intercropping in III year Oilpalm	Ha			Ha	110	5.5		0	0
11	Assistance for INM,IPM and tree guard – II year	Ha			Ha	103	1.2875		0	0
12	Assistance for INM,IPM and tree guard – III year	Ha			Ha	134	1.675		0	0
13	Construction of Vermi compost	No	1	0.15	No	20	3.0		0	0
14	Subsidy to bore well	No	12	6.0	No	10	5.0		0	0
				77.6824			117.1755		0	0
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME –Coconut seedling									
1	Distribution of coconut seedling	Nos	15420	1.69575	Nos	18800	2.55	Nos	11300	1.29750
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME –SUGARCANE									
1	Enrichment of soil fertility through trash mulching	Ha			Ha	160	3.20	Ha	160	3.84
2	SSI demonstration	Ha	20	5.02	Ha	110	33.0	Ha		
3	Precision farming	Ha	40	10.030						7.68
	COTTON MINI MISSION									
1	Farm field school	Nos	0	0	Nos	3	0.51	Nos	0	0
2	Distribution of pheromone trap	Ha	0	0	Ha	50	0.15	Ha	0	0
3	Distribution of bio agents	Ha	500	4.50	Ha	150	1.35	Ha	0	0
4	Supply of MN	Ha	250	0.875		0	0		0	0
	Total			5.625						
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME – IFS demo									
1	IFS demonstration	Ha	36	19.80	Ha	0	0	Ha	0	0
	NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME									
1	Green manure seed	Mt	35	8.75					0	0

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
	distribution									
2	Vermicompost unit	Nos	43	6.45					0	0
3	Formation of pits for preparation of FYM	Nos	150	3.354					0	0
	NATIONAL FOOD SECURITY MISSION (PULSES)									
1	Distribution of Certified Seeds@Rs.12/Kg	Qtl.	62	1.364	Qtl.	0	0	Qtl.	0	0
2	Distribution of Certified Seeds@Rs.22/Kg	Qtl.	187	2.244	Qtl.	0	0	Qtl.	0	0
3	Demonstration on improved technologies-Cluster Demonstration @Rs.5000/ha.	No.	100	5.000	No.	0	0	No.	368	31.00
4	Distribution of HYV Seeds-Rs.2500/ qtl					0	0	Qtl	250	6.25
5	INM-Micro Nutrient @ Rs.500 / Ha	Ha.	83	0.415	Ha.	0	0	Ha.	60	0.30
6	INM-Gypsum @ Rs.750 / Ha	Ha.	56	0.420	Ha.	0	0	Ha.	70	0.525
7	Assistance for Rhizobium culture	Ha.	416	0.416	Ha.	0	0	Ha.	39	0.117
8	IPM Package @ Rs.750 / Ha	Ha.	139	1.0425	Ha.	0	0	Ha.	0	0
9	IPM - Assistance for Distribution of PP Chemicals	Ha.	139	0.695	Ha.	0	0	Ha.	140	0.70
10	IPM - Assistance for Distribution of Weedicide	Ha.	28	0.140	Ha.	0	0	Ha.	140	0.70

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
11	IPM - Assistance for Distribution of NPV	Ha.	14	0.035	Ha.	0	0	Ha.	0	0
12	Resource conservation technologies/tools - Assistance for Knapsack Sprayers	No.	7	0.210	No.	0	0	No.	0	0
13	Resource conservation technologies/tools - Assistance for Rotavator @ Rs.30000/No	No.	4	1.200	No.	0	0	No.	0	0
14	Efficiant Water Application Tools- Incentive for Pump sets @ Rs.10000/No.	No.	4	0.400	No.	0	0	No.	0	0
15	Efficiant Water Application Tools- Distribution of Sprinkler Set @ Rs.7500/No.	No.	2	0.150	No.	0	0	No.	0	0
16	Efficiant Water Application Tools- Incentive for Mobile Sprinklers/Raingun	No.	10	1.500	No.	0	0	No.	11	1.65
17	Efficiant Water Application Tools- Pipe carrying water @ Rs.15000/No.	No.	13	1.950	No.	0	0	No.	10	1.50
18	PMT & Other Miscellaneous at District Level & to other Districts (JDA Office)	No.	0	1.000	No.	0	0	No.	0	10.00
				18.1815						**52.742**

Sl. No	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs	Unit	Target	Allocation in l.rs
	NATIONAL FOOD SECURITY MISSION (Coarse cereal)									
1	Demonstration on improved packages	Ha	0	0	Ha	0	0	Ha	1200	60
2	Distribution of Hybrid seed	Qtl	0	0	Qtl	0	0	Qtl	150	2.25
3	Installation of Mobile Sprinkler @ 15500/No	No	0	0	No	0	0	No	50	7.750
4	Demonstration in remote areas by NGO							Ha	150	8.250
										78.25

Table 3.84 Schemes to be implemented by Department of Agricultural Engineering (2012-13, 2013-14 and 2014-15)

Sl. No	Scheme / Project Title	2012-13		2013-14		2014-15	
		Physical Target	Fiannce Allocation	Physical Target	Fiannce Allocation	Physical Target	Fiannce Allocation
I.	**Centrally sponsored**						
1.	Demonstration of Agricultural Machineries / Implements	14	0.42	15	0.45	9	0.27
2.	Demonstration of Post Harvest Technology and Management – General					15	0.45
3.	Demonstration of Post Harvest Technology and Management – SCSP					1	0.03
II.	**State sponsored**						
1	Distribution of Agricultural Machineries / Implements under NADP – General	484	143.76	321	88.79	207	54.85
2	Distribution of Agricultural Machineries / Implements under NADP – SCSP	35	22.69	58	15.34	32	13.32
3	Formation of Farmers' group including package of Machneries & Training –NADP	1	0.30	1	0.33		
4	Training Programme on maintanence of Agricultural Machineries / Implements			4	1.04		
5	Installation of Solar Pumping System- Fixed			26	79.16	96	353.57
6.	**Distribution of Agricultural Machineries / Implements under SMAM – SCSP**					6	6.75
III.	**Central and State sponsored Indicate the share)**						
1	Distribution of Agricultural Machineries / Implements under MMA (Centre Share :90%, State Share :10%)	7	2.65	11	3.70	-	-

CHAPTER – IV

Block Level and District Plan

The interventions proposed, the associated outlays, the physical targets, budgetary requirements, time frame for achievements in the agricultural (field crops) sector, horticultural sector, agricultural engineering sector, agricultural marketing and animal husbandry sector and fisheries sector are discussed in this chapter. This would comprehend the activities and the achievements to be made in the next five years' period under NADP.

4.1. Agriculture Sector

The various development issues, constraints and activities (interventions) planned for the development of agriculture and allied sectors were discussed in earlier chapters. Based on the discussions, the district plan has been briefly outlined in this chapter. The activities planned and the associated targets and costs are presented for the development of both agricultural and allied sectors.

4.1.1. Paddy

4.1.1.1. Enhancing the Paddy productivity

Paddy is one of the most important food grain crops of the State. Kuruvai variety of paddy crop was cultivated in 6,562 hectares in Cumbum, Uthamapalayam, Chinnamanur, Bodi and Theni blocks. Cumbum valley is well known for paddy occupying a double cropped area by using Periyar water for irrigation. Of these, 3,823 hectares have been brought under the SRI method of cultivation. Enhanced production is to be met only by increasing the productivity of paddy in Theni district. Increasing the productivity of paddy is highly dependent on the adoption of modern technologies and following are the project components proposed to enhance the yield.

4.1.1.2. Project components

- Promotion of SRI technology- to be covered in all blocks except in Kadamalaikundu block
- Seed production of foundation and certified seeds- to be covered in all blocks except in Kadamalaikundu block
- Distribution of certified and foundation seeds- to be covered in all blocks except in Kadamalaikundu block

- Incentives for paddy machine planting- were covered in all blocks except in Kadamalaikundu block
- Distribution of Hybrid rice, bio-fertlizer, zinc,biocontrol agents,herbicides- were covered in all blocks except in Kadamalaikundu block

4.1.1.3. Budget

It is proposed to incur **₹.3514.78** Lakh over a period of five years with the finance facilities under the NADP and other sources as shown in Table 4.1

4.1.1.4. Expected outcome

The SRI technology will result in an increase in the yield of paddy and in turn the production of paddy. This will result in the ensuring of food security for the people.

4.1.1.5. Implementing agency

Department of Agriculture will implement the project.

Table 4.1. Budget for interventions in Paddy

(₹. in Lakh)

Sl. No	Interventions	Unit	Unit Cost	Block Covered	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 Except B5	1650	247.50	1730	259.50	1810	271.50	1890	283.50	2030	304.50	9110	1366.50
2	Distribution of High Yielding Varieties	MT	35000	All Blocks Except B5	150	52.50	158	55.30	166	58.10	175	61.25	188	65.80	837	292.95
3	Distribution of Foundation	MT	40000	All Blocks Except B5	54	21.60	63.5	25.40	73	29.20	76.2	30.48	83.5	33.40	350.2	140.08
4	seed production - Foundation	MT	32000	All Blocks Except B5	45	14.40	49.5	15.84	60	19.20	64.2	20.54	74.5	23.84	293.2	93.82
5	seed production - Certified class	MT	26000	All Blocks Except B5	215	55.90	224	58.24	234	60.84	247	64.22	265	68.90	1185	308.10
6	Incentives for paddy machine planting	Ha	10000	All Blocks Except B5	1330	133.00	1389	138.90	1448	144.80	1517	151.70	1645	164.50	7329	732.90
8	Distribution of MN mixture/ Copper Sulphate	Ha	1000	All Blocks Except B5	930	9.30	974	9.74	1018	10.18	1062	10.62	1155	11.55	5139	51.39
9	Distribution of biofertilizer / PPFM / bioinputs / plant nutrient mobilizing bacteria	Ha	300	All Blocks Except B5	1380	4.14	1444	4.33	1508	4.52	1572	4.72	1710	5.13	7614	22.84
10	Distribution of Zinc sulphate (Soil application & foliar)	Ha.	1000	All Blocks Except B5	1880	18.80	1974	19.74	2068	20.68	2162	21.62	2355	23.55	10439	104.39
11	Distribution of biocontrol agents/biopesticides	Ha..	1000	All Blocks Except B5	250	2.50	261	2.61	272	2.72	283	2.83	305	3.05	1371	13.71
12	Gypsum application	Ha.	1500	All Blocks Except B5	350	5.25	365	5.48	380	5.70	395	5.93	425	6.38	1915	28.73
13	Distribution of herbicides	Ha.	1000	All Blocks Except B5	1250	12.50	1310	13.10	1370	13.70	1430	14.30	1555	15.55	6915	69.15
14	Hybrid Rice seed distribution	Ha	4000	All Blocks Except B5	560	22.40	765	30.60	965	38.60	1070	42.80	1070	42.80	4430	177.20
15	Polyvinyl coated Tarpaulin (6m x 5m)	No.	2000	All Blocks Except B5	115	2.30	122	2.44	129	2.58	136	2.72	149	2.98	651	13.02
17	Demonstration of drip irrigation	Ha	100000	All Blocks Except B5	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
	Total					**622.09**		**661.22**		**702.32**		**737.23**		**791.93**		**3514.78**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.2. Millets

4.1.2.1. Enhancing the Millets productivity

Maize, sorghum and cumbu are the major millets cultivated in Theni district. Maize is cultivated as irrigated crop. The area under millets in Theni district is about approximately 9000 ha. Therefore, there is scope for increasing the productivity and production of millets through appropriate technologies like distribution of quality seeds, soil health enhancers, plant protection measures and demonstration of technologies.

4.1.2. 2. Project components

- Formation of small millet groups were covered in Cumbum block
- LPG operated Bird scares to be covered in all blocks
- Distribution of bio-fertilizers- to be covered in Cumbum and Kadamalaikundu
- Millets processing units to be covered in all blocks except peryakulam
- Seed production units to be covered in al blocks

4.1.2.3. Budget

It is proposed to incur ₹. **2561.39** Lakh over a period of five years with the finance facilities under the NADP.

4.1.2.4. Expected outcome

The expected outcome will be increased area under maize and other millets at least 5-10 percent with improved varieties along with the package of practices resulting in an increase in the millets production.

4.1.2.5. Implementing Agency

Department of Agriculture

Table 4.2. Budget for interventions in Millets

(₹. in Lakh)

Sl. No.	Components	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Millets															
1	Distribution of LPG operated Bird Scarrer	Nos.	0.1	All Blocks	1	0.10	2	0.20	3	0.30	4	0.40	5	0.50	15	1.50
2	Distribution on biofertilizer - Liquid / Carrier	Ha	0.003	B4,B5	500	1.50	525	1.58	550	1.65	575	1.73	625	1.88	2775	8.33
3	Expansion of area under Minor Millets (Demo - supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B4	100	5.00	105	5.25	110	5.50	115	5.75	125	6.25	555	27.75
4	Formation of small millet groups	Nos.	0.2	B4	1	0.20	2	0.40	3	0.60	4	0.80	5	1.00	15	3.00
5	Millet Processing unit - Minor millet	Nos.	2.5	All Blocks Except B6	7	17.50	14	35.00	21	52.50	28	70.00	35	87.50	105	262.50
6	Seed Production / Incentives for quality seed	MT	0.63	All Blocks	9	5.67	11.5	7.25	14	8.82	16.5	10.40	19	11.97	70	44.10
7	Soil moisture conservation practices	Ha	0.05	All Blocks	150	7.50	125	6.25	225	11.25	250	12.50	150	7.50	900	45.00
8	Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP)	ha	0.04	All Blocks	300	12.00	300	12.00	300	12.00	300	12.00	300	12.00	1500	60.00
	Sorghum															
9	Demonstration (Supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	All Blocks	150	7.50	150	7.50	150	7.50	150	7.50	300	15.00	900	45.00
10	Distribution of biofertilizers - Liquid / Carrier	Ha	0.003	All Blocks	635	1.91	720	2.16	755	2.27	855	2.57	1000	3.00	3965	11.90
11	Distribution of MN mixture (12.5kg/ha)	Ha	0.007	All Blocks	505	3.54	595	4.17	635	4.45	737	5.16	825	5.78	3297	23.08
12	Seed distribution	MT	0.7	All Blocks	46	32.20	57	39.90	68	47.60	76	53.20	86	60.20	333	233.10

Sl. No.	Components	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Maize															
13	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	All Blocks	620	31.00	760	38.00	795	39.75	830	41.50	895	44.75	3900	195.00
14	Distribution of biofertilizers - Liquid / Carrier	Ha	0.003	All Blocks	610	1.83	655	1.97	710	2.13	735	2.21	680	2.04	3390	10.17
15	Distribution of Maize maxim (15 kg/ha)	Ha	0.045	All Blocks	1	0.05	0	0.00	0	0.00	0	0.00	0	0.00	1	0.05
16	Drip irrigation for maize	Ha	1	All Blocks	76	76.00	84	84.00	86	86.00	94	94.00	116	116.00	456	456.00
17	Seed Distribution	MT	0.4	All Blocks	6.75	2.70	13	5.20	19.1	7.64	25.2	10.08	31.25	12.50	95.3	38.12
18	Seed Distribution Hybrid seeds for maize	MT	1.8	All Blocks Except B5	42	75.60	47	84.60	53	95.40	57	102.60	64	115.20	263	473.40
	Cumbu															
19	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	All Blocks	575	28.75	600	30.00	625	31.25	650	32.50	700	35.00	3150	157.50
20	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	All Blocks	535	1.61	660	1.98	770	2.31	782	2.35	790	2.37	3537	10.61
21	Distribution of MN mixture (12.5kg/ha)	Ha	0.007	All Blocks	487	3.41	508	3.56	528	3.70	550	3.85	596	4.17	2669	18.68
22	Seed Distribution	MT	0.53	All Blocks	125	66.25	139	73.67	150	79.50	162	85.86	177	93.81	753	399.09
	Ragi															
23	Demonstration (supply of seed, seed treatment, MN mixture & organic package)	Ha	0.05	All Blocks	50	2.50	52	2.60	54	2.70	56	2.80	60	3.00	272	13.60
24	Distribution of biofertilizers - Liquid / Carrier	Ha	0.003	All Blocks	50	0.15	52	0.16	54	0.16	56	0.17	62	0.19	274	0.82
25	Seed Distribution	MT	0.66	All Blocks	5	3.30	6	3.96	7	4.62	8	5.28	9	5.94	35	23.10
	Total					**387.75**		**451.33**		**509.59**		**565.18**		**647.54**		**2561.39**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.3. Pulses

Enhancing the productivity of pulses

The major pulse crops grown in the district are red gram, black gram and green gram. It is mostly grown in the rainfed as well as rice fallows by utilizing the residual moisture. Among pulses, redgram, green gram and black gram are cultivated in an area about 1183 and 748 ha respectively in Theni district. The productivity of pulses is around redgram, greengram and Blackgram viz., 2231, 1197 and 883 kg/ha respectively. By increasing the productivity in pulses the nutritional security of the district can be ensured. Technological interventions in pulse production will increase the yield of pulses. Through awareness programmes, field demonstration, supply of high yielding variety seeds and adoption of improved package of practices the productivity of pulses can be enhanced.

Project components

- Distribution of certified seeds to be covered in all blocks
- Purchase of breeder seeds to be covered in all blocks
- Production of certified seeds to be covered in all blocks
- Distribution of bio-fertilizers, DAP spray, pulse wonder, yellow sticky trap, weedicide, plant protection chemicals -to be covered in all blocks
- Seed treatment- to be covered in all blocks

Budget

To enhance the production of pulses in this district a budget ₹.2901.43 Lakh is proposed as shown in Table 4.3.

Expected outcome

The expected outcome will be increasing area under pulse with improved varieties along with the package of practices resulting in an increase in the pulse production and productivity.

Implementing Agency

Department of Agriculture will implement the project

Table 4.3. Budget for interventions in Pulses

(₹. in Lakh)

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Purchase of breeder seeds	MT	250000	All Blocks	3	7.50	4	8.75	4	8.75	4	8.75	4	8.75	17	42.50
2	Production of Foundation/ Certified pulses seeds	MT	86000	All Blocks	89	76.54	97	83.42	105	90.30	113	97.18	116	99.76	520	447.20
3	Distribution of Certified Seeds	MT	100000	All Blocks	82	82.00	90	90.00	98	98.00	106	106.00	112	112.00	488	488.00
4	Distribution of Gypsum	ha	400	All Blocks	430	1.72	448	1.79	467	1.87	485	1.94	460	1.84	2290	9.16
5	Distribution of Biofertilizer/ Organic packages (Rhizobium + Phosphobacteria) - Liquid / Carrier	Ha	600	All Blocks	1750	10.50	1830	10.98	1910	11.46	1995	11.97	1960	11.76	9445	56.67
6	Distribution of Micro Nutrients(5 kgs/ Ha)	Ha	350	All Blocks	1150	4.03	1195	4.18	1240	4.34	1295	4.53	1330	4.66	6210	21.74
7	DAP Spray	Ha	700	All Blocks	1700	11.90	1775	12.43	1850	12.95	1930	13.51	2013	14.09	9268	64.88
8	Pulse wonder - 5 kg/ha	Ha	1000	All Blocks	635	6.35	880	8.80	925	9.25	1210	12.10	565	5.65	4215	42.15
9	Bund Cropping	Ha	300	All Blocks	550	1.65	585	1.76	665	2.00	790	2.37	740	2.22	3330	9.99
10	Line sowing	Ha	2250	All Blocks	860	19.35	945	21.26	965	21.71	1130	25.43	820	18.45	4720	106.20
11	Distribution of Yellow sticky trap /pheromone trap	ha	1000	All Blocks	165	1.65	174	1.74	182	1.82	190	1.90	198	1.98	909	9.09
12	Cropping system based demonstration	Ha	12500	All Blocks	710	88.75	810	101.25	960	120.00	1055	131.88	1080	135.00	4615	576.88
13	Distribution of weedicide	Ha	1000	All Blocks	225	2.25	236	2.36	246	2.46	256	2.56	269	2.69	1232	12.32
14	Plant Protection Chemicals	Ha	1000	All Blocks	650	6.50	682	6.82	713	7.13	745	7.45	809	8.09	3598	35.98

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
15	Seed treatment and soil application with Trichoderma viridi	Ha	700	All Blocks	595	4.17	630	4.41	810	5.67	840	5.88	760	5.32	3635	25.45
16	Pure crop demonstration - Black gram and green gram	Ha	6300	All Blocks	950	59.85	980	61.74	1210	76.23	1240	78.12	1010	63.63	5390	339.57
17	Demonstration on intercropping of pulses with other crops	Ha	8300	All Blocks	700	58.10	790	65.57	870	72.21	1065	88.40	930	77.19	4355	361.47
18	Demonstration on pulses production	Ha	8250	All Blocks	310	25.58	435	35.89	510	42.08	535	44.14	400	33.00	2190	180.68
19	Promotion of Redgram Transplantation for nursery preparation	Ha	5000	All Blocks	190	9.50	245	12.25	245	12.25	255	12.75	230	11.50	1165	58.25
20	Seed treatment with chemicals	Ha	250	All Blocks	870	2.18	1050	2.63	1090	2.73	1130	2.83	1170	2.93	5310	13.28
	Total					**480.05**		**538.01**		**603.20**		**659.67**		**620.50**		**2901.43**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.4. Oilseeds

Enhancing the productivity of oilseeds

Oilseed crops are cultivated under rainfed conditions. However, the market price of their outputs fetches higher prices, thereby farmers could get more income, if they obtain more yield from oilseed crops. Groundnut is mainly cultivatied as oilseed in this district in an area about 5606 ha with productivity of 3222kg/ha. Therefore, it is necessary to provide the needed assistance to the farmers by way of integrated approach and promotion of technologies for increasing the productivity of oilseeds.

Project components

- Distribution of breeder seeds- to be covered in all blocks except in Cumbum
- Production of foundation seeds- to be covered in all blocks
- Distribution of certified seeds- to be covered in all blocks
- Distribution of seed treatment chemicals, bio-fertilizers, pheromone traps- to be covered in all blocks
- Production of certified seeds- to be covered in Theni block

Budget

It is proposed to incur ₹.847.27 Lakh over a period of five years with the finance facilities under the NADP and other sources as shown in Table 4.4

Expected outcome

The oilseed area would also increase from 10 to 15 per cent from the exiting area especially Groundnut and gingelly in this district.

Implementing Agency

Department of Agriculture

Table 4.4. Budget for interventions in oilseeds

(₹. In Lakh)

Sl. No	Components	Unit	Unit Cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**OILSEEDS**															
1	Purchase of Breeder seed	Mt	1.50	All Blocks B4	6	8.40	6	8.40	6	8.40	6	8.40	2	3.60	25	37.20
2	Polythene mulch Inclusive of erection	Ha	0.50	B4,B8	20	10.00	20	10.00	20	10.00	20	10.00	20	10.00	100	50.00
3	Herbicide	Ha	0.01	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
4	Compact Block Demonstration - Groundnut	Ha	0.20	B4,B2,B8	60	12.00	60	12.00	60	12.00	60	12.00	60	12.00	300	60.00
II	**GROUNDNUT**															
5	Strengthening seed chain by foundation seed production	Mt	0.76	All Blocks	30	22.80	38	28.88	46	34.96	54	41.04	62	47.12	230	174.80
6	Strengthening seed chain by certified seed production	Mt	0.84	All Blocks	30	25.20	38	31.92	46	38.64	54	45.36	62	52.08	230	193.20
7	Distribution of Certified seeds	Kg	0.00	All Blocks	300	0.45	312	0.47	326	0.49	338	0.51	361	0.54	1637	2.46
8	Distribution of Seed Treatment Chemicals and Bioagents (T.Viridi)	Ha	0.02	All Blocks	455	7.28	465	7.44	470	7.52	475	7.60	480	7.68	2345	37.52
9	Application of Gypsum to Groundnut Crop	Ha	0.02	B4,B2,B3,B8	420	6.30	420	6.30	420	6.30	420	6.30	420	6.30	2100	31.50
10	Distribution of Micro Nutrient Mixture	Ha	0.01	All Blocks	550	3.30	576	3.46	602	3.61	628	3.77	680	4.08	3036	18.22
11	Distribution of Biofertilizer	Ha	0.01	All Blocks	270	1.62	282	1.69	293	1.76	305	1.83	327	1.96	1476	8.86
12	Distribution of Liquid Biofertilizer	Ha	0.01	All Blocks	500	3.00	524	3.14	547	3.28	571	3.42	617	3.70	2758	16.55

Sl. No	Components	Unit	Unit Cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
13	Distribution of Rhizobium/ PSB Culture	Nos.	0.02	All Blocks	80	1.60	88	1.76	95	1.90	103	2.06	111	2.22	477	9.54
14	Distribution of Pheromone Traps	Nos.	0.02	All Blocks	16	0.32	24	0.48	32	0.64	40	0.80	45	0.90	157	3.14
15	Distribution of Light Traps	Ha	0.01	All Blocks	132	0.79	158	0.95	172	1.03	235	1.41	250	1.50	947	5.68
16	Castor as Bund crop	Ha	0.02	All Blocks	275	4.13	286	4.29	297	4.46	308	4.62	328	4.92	1494	22.41
17	Combined Nutrient Spray	Ha	0.03	All Blocks	285	8.55	297	8.91	309	9.27	321	9.63	344	10.32	1556	46.68
18	Seed Drill Sowing / Line sowing of Groundnut with Pulses as intercrop (hiring charges only)	Ha	0.04	All Blocks	415	16.60	440	17.60	465	18.60	480	19.20	495	19.80	2295	91.80
III	**GINGELLY**															
19	Production of Foundation Seeds	Mt	1.09	B7	0	0.22	0	0.27	0	0.33	0	0.33	0	0.38	1	1.53
20	Production of Certified Seeds	Mt	1.25	B4,B7,B8	3	4.31	4	4.38	4	4.44	5	5.69	5	5.75	20	24.56
21	Distribution of certified seeds	Ha	0.00	B4,B6,B7,B8	255	1.02	365	1.46	425	1.70	435	1.74	595	2.38	2075	8.30
IV	**CASTOR**															
22	Production of Certified Seeds	Mt	0.50	B7,B2	0	0.23	1	0.25	1	0.25	1	0.28	1	0.30	3	1.30
23	Distribution of certified seeds	Mt	0.58	B4,B5,B7,B2,B2	1	0.34	1	0.37	1	0.40	1	0.43	1	0.49	4	2.03
	Total					**138.45**		**154.41**		**169.97**		**186.40**		**198.02**		**847.27**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.5. Oil palm

Enhancing the productivity of Oil palm

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 is extracted from the pulpy portion (monocarp) of the fruit of Oil Palm. The Crude Palm Oil is deep orange red in colour and is semi solid at a temperature of 20 degree centigrade. 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. Vitamin A and Vitamin E contents are the highest in palm oil in comparison with any other types of oil and hence consumption of the same boosts health. 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 to be covered in all blocks
- Inputs for intercropping to be covered in all blocks except Chinnamanur
- Supply of diesel pumps- to be covered in Kadamalaikundu, Theni and Uthamapalayam blocks
- Supply of aluminium ladder, wire mesh and oil palm cuter to be covered in Uthamapalayam blocks

Budget

It is proposed to incur ₹.187.21 Lakh over a period of five years 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 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 and report the progress to the District-level officials.

4.5. Enhancing the productivity of Oil Palm

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	OILPALM															
1	**NMOOP -Mini Mission -II (Oilpalm)**															
2	Oilpalm Area Expansion Programme	Ha	0.14	All Blocks	56	7.84	59	8.26	62	8.67	65	9.15	71	9.91	313	43.82
3	Cultivation maintenance	Ha	0.1	All Blocks Except B3	31	3.05	36	3.58	38	3.75	39	3.93	41	4.08	184	18.38
4	Inputs for Intercropping	Ha	0.1	All Blocks Except B3	43	4.25	46	4.58	48	4.75	49	4.93	45	4.48	230	22.98
5	Supply of Diesel pumps	No	0.3	B5,B7,B8	4	1.20	4	1.20	4	1.20	4	1.20	4	1.20	20	6.00
6	Construction of Borewells	No	1	B6,B7,B8	3	3.00	3	3.00	3	3.00	3	3.00	3	3.00	15	15.00
7	Motorised Chisel	No	0.2	B2,B7,B8	5	1.00	5	1.00	5	1.00	5	1.00	5	1.00	25	5.00
8	Alumium portable ladder	No	0.06	B8	2	0.12	2	0.12	2	0.12	2	0.12	2	0.12	10	0.60
9	Wire mesh	No	0.1	All Blocks Except B3	31	3.05	36	3.58	38	3.75	39	3.93	41	4.08	184	18.38
10	Oilpalm Cutter	No	0.03	B7,B8,B6B2	12	0.36	15	0.45	15	0.45	15	0.45	15	0.45	72	2.16
	NMOOP -Mini Mission -III (Tree Borne Oilseeds)															
11	Neem/ Pungam Area Expansion Programme	Ha	0.2	All Blocks Except B3	27	5.40	31	6.20	39	7.80	41	8.20	45	9.00	183	36.60
12	Cultivation maintenance	Ha	0.05	All Blocks Except B3	27	1.35	31	1.55	39	1.95	41	2.05	45	2.25	183	9.15
13	Inputs for Intercropping	Ha	0.05	All Blocks Except B3	27	1.35	31	1.55	39	1.95	41	2.05	45	2.25	183	9.15
	Total					**31.97**		**35.06**		**38.39**		**39.99**		**41.80**		**187.21**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.6. Cotton

Enhancing the productivity of Cotton

Cotton is the most important fiber crop of India. It provides the basic raw material (cotton fibre) to cotton textile industry. Its seed (binola) is used in vanaspati industry and can also be used as part of fodder for milch cattle to get better milk. The reduction in the area under cotton is mainly due to the increased cost of cultivation because of the high cost of labour and plant protection in the cultivation of cotton. Cotton is susceptible to many insects and pests. Though HYV seeds and hybrid seeds are available in the market and the eradication of disease is not achievable. Alternatively, the production of cotton can be increased through varying cultivation practices that could achieve sustainable development.

Project components

- Distribution of intercrop seeds, MN mixture, plant protection chemicals, yellow sticky trap- to be implemented in Andipatti, Bodinaickanur, Periyakulam and Theni blocks
- Trials on High Density Planting system in cotton- to be implemented in Andipatti, Bodinaickanur, Periyakulam and Theni blocks
- Distribution of the cotton picking machine- to be implemented in Andipatti, Bodinaickanur, Periyakulam and Theni blocks
- Field days and exposure visits- to be implemented in Andipatti, Bodinaickanur, Periyakulam and Theni blocks

Budget

It is proposed to incur ₹.946.63 Lakh over a period of five years with the finance facilities under the NADP and other sources as given in Table 4.6.

Expected outcome

The implementation of the above project will result in an increase in the productivity of cotton in Kinathukadavu and Annur blocks by during southwest monsoon and improved cotton technologies produce more cotton as well as supply of quality raw material to the textile industry which will improve the income of the farmers.

Implementing Agency

Department of Agriculture will implement the project

4.6. Enhancing the productivity of Cotton

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Block Covered	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 biofertilizer	Ha	300	B1,B2,B6,B7	400	1.20	420	1.26	440	1.32	460	1.38	500	1.50	2220	6.66
2	Distribution of biopesticides / Bio agents	Ha	1000	B1,B2,B6,B7	200	2.00	208	2.08	216	2.16	224	2.24	240	2.40	1088	10.88
3	Distribution of cotton picking machine	No	5000	B1,B2,B6,B7	8	0.40	12	0.60	16	0.80	20	1.00	24	1.20	80	4.00
4	Distribution of MN Mixture	Ha	1000	B1,B2,B6,B7	200	2.00	208	2.08	216	2.16	224	2.24	240	2.40	1088	10.88
5	Distribution of Pheromone trap	No	6000	B1,B2,B6,B7	40	2.40	44	2.64	48	2.88	52	3.12	56	3.36	240	14.40
6	Distribution of PP chemicals	Ha	1000	B1,B2,B6,B7	550	5.50	605	6.05	685	6.85	720	7.20	725	7.25	3285	32.85
7	Distribution of Yellow Sticky trap	No	3000	B1,B2,B6,B7	20	0.60	24	0.72	28	0.84	32	0.96	36	1.08	140	4.20
8	Exposure visits	No	40000	B1,B2,B6,B7	4	1.60	8	3.20	12	4.80	16	6.40	20	8.00	60	24.00
9	Farmers training	No	20000	B1,B2,B6,B7	7	1.40	11	2.20	15	3.00	19	3.80	23	4.60	75	15.00
10	Field days	No	10000	B1,B2,B6,B7	5	0.50	9	0.90	13	1.30	17	1.70	21	2.10	65	6.50
11	Intercropping with pulses	Ha	10000	B1,B2,B6,B7	200	20.00	208	20.80	216	21.60	224	22.40	240	24.00	1088	108.80
12	Promotion of precision farming in cotton -WSF	Ha	50000	B1,B2,B6,B7	40	20.00	42	21.00	44	22.00	46.5	23.25	49	24.50	221.5	110.75
13	Foundation seed production	MT	111300	B2,B7	0.75	0.83	1.05	1.17	1.35	1.50	1.65	1.84	2	2.23	6.8	7.57
14	Certified seed production	MT	107900	B2,B7	1.75	1.89	2	2.16	2.15	2.32	2.3	2.48	2.5	2.70	10.7	11.55
15	TNAU Cotton plus distribution (6 Kg./ Ha)	Ha	1200	B1,B2,B6,B7	120	1.44	132	1.58	140	1.68	147	1.76	153	1.84	692	8.30

Sl. No	Components	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
16	Frontline demo on ICM in cotton	Ha	7000	B2,B6,B7	65	4.55	66	4.62	67	4.69	68	4.76	70	4.90	336	23.52
17	Frontline Demo on Desi and ELS cotton seed production	Ha	8000	B7	5	0.40	5	0.40	5	0.40	5	0.40	5	0.40	25	2.00
18	Trials on High Density Planting system in cotton	Ha	9000	B1,B2,B6,B7	33	2.97	35	3.15	35	3.15	35	3.15	35	3.15	173	15.57
19	Application of weedicide	Ha	3000	All Blocks	70	2.10	70	2.10	70	2.10	70	2.10	70	2.10	350	10.50
20	Spraying of growth regulator	Ha	3000	B1,B2,B6,B7	120	3.60	130	3.90	135	4.05	140	4.20	140	4.20	665	19.95
21	Topping of cotton	Ha	1000	B1,B2,B6,B7	150	1.50	155	1.55	160	1.60	165	1.65	170	1.70	800	8.00
22	Summer ploughing	Ha	7500	B2,B6,B7	220	16.50	270	20.25	320	24.00	370	27.75	420	31.50	1600	120.00
23	Distribution of Certified seed	MT	115000	B1,B6,B7	15	17.25	18	20.70	21	24.15	24	27.60	27	31.05	105	120.75
24	Distribution of Hybrid seed	MT	2500000	B1,B2,B6,B7	2	50.00	2	50.00	2	50.00	2	50.00	2	50.00	10	250.00
	Grand total					**160.63**		**175.11**		**189.35**		**203.38**		**218.15**		**946.63**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.7. Sugarcane

Enhancing the productivity of sugarcane

Sugarcane is the second most important industrial crop in the country. The growth of sugarcane agriculture in the country had been consistent during the past seven decades. There was increase in area, production, productivity and sugar recovery. The productivity of sugarcane in future need to be taken care since they are expected to show much lower in the future than their current productivity. To improve the productivity and efficiency of the sugarcane production system, new varieties and technologies are introduced in Theni district to shift the productivity zone. To achieve this the following interventions are proposed as project components

Project components

- Distribution of sugarcane harvester to be implemented in Periyakulam and Theni blocks
- Distribution of weedicide, MN mixture- to be implemented in all blocks
- Establishment of shade net and - to be implemented in all blocks
- Distribution of single bud seeling- to be implemented in all blocks
- Distribution of chip cutter to be implemented in Andipatti, Kadamalaikundu, Periyakulam and Theni blocks

Budget

It is proposed to incur ₹.3344.57 Lakh over a period of five years with the finance facilities under the NADP.

Expected outcome

The immediate effect will be Increasing the productivity of sugarcane and such increase 5 to 10 tonnes/acre will help in making available required quantity of canes to the mills and also would enhance income and employment opportunities of farmers and farm labourers.

Implementing Agency

Department of Agriculture

Table 4.7. Budget for interventions in Sugarcane

(₹. In Lakh)

Sl. No	Components	Unit	Unit cost	Blocks covered	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 biofertilizer (Ha)	Ha	0.006	B1	100	0.60	105	0.63	110	0.66	115	0.69	125	0.75	555	3.33
2	Distribution of weedicide (Ha)	Ha	0.01	All Blocks	200	2.00	217	2.17	234	2.34	261	2.61	258	2.58	1170	11.70
3	Distribution of Chip Cutter	Nos	0.05	B1,B5,B6,B7	4	0.20	8	0.40	12	0.60	16	0.80	20	1.00	60	3.00
4	Distribution of FeSO4 Spray	Ha	0.005	All Blocks	326	1.63	340.5	1.70	356	1.78	371.5	1.86	400.5	2.00	1794.5	8.97
5	Distribution of ZnSO4 Spray	Ha	0.005	All Blocks	245	1.23	265	1.33	285	1.43	315	1.58	335	1.68	1445	7.23
6	Distribution of Micro Nutrient Mixture	Ha	0.02	All Blocks	85.5	1.71	91	1.82	97	1.94	103.5	2.07	114	2.28	491	9.82
7	Distribution of Parasite Trichogramma	Ha	0.00125	All Blocks	191	0.24	201	0.25	210	0.26	219	0.27	237	0.30	1058	1.32
8	Distribution of Protray (2500 nos/ha)	Nos	0.0008	B1,B6,B7	101	0.08	106	0.08	111	0.09	116	0.09	125	0.10	559	0.45
9	Distribution of Sugarcane Booster (10 Kg/Ha)	Ha	0.035	All Blocks Except B6,B7	91	3.19	96	3.36	102	3.57	108	3.78	118	4.13	515	18.03
10	Distribution of Sugarcane Harvester	Nos	75	B6,B7	7	525.00	7	525.00	7	525.00	7	525.00	7	525.00	35	2625.00
11	Distribution of Water Soluble Fertiliers	ha	0.25	All Blocks Except B6,B7	70	17.50	70	17.50	70	17.50	70	17.50	70	17.50	350	87.50
	Sustainable Sugarcane Initiative (SSI)															
12	A. Establishment of Shadenet	Nos	1.5	All Blocks	25	37.50	25	37.50	25	37.50	25	37.50	25	37.50	125	187.50
13	B. Distribution of Single Bud Seedling	Ha	0.225	All Blocks	250	56.25	250	56.25	250	56.25	250	56.25	250	56.25	1250	281.25

Sl. No	Components	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
14	Trash Mulching	Ha	0.04	All Blocks Except B8	185	7.40	193.5	7.74	202	8.08	200.5	8.02	216	8.64	997	39.88
15	Demonstration on intercropping in Sugarcane	Ha	0.08	All Blocks Except B2,B5	141	11.28	136	10.88	146	11.68	156	12.48	166	13.28	745	59.60
	Grand Total					**665.79**		**666.61**		**668.67**		**670.49**		**672.98**		**3344.57**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.8. Coconut

Enhancing the productivity of Coconut

Theni district has an area of about 19,116 ha under coconut cultivation and this accounted for 20.80 per cent of the area under the total cropped area of the district. Coconut cultivation gained importance in Theni district due to the suitability of the soil, climate and labour problem in the cultivation of other crops. However, the farmers face the decline in the yield of coconut year after year. To get higher yield the existing coconut gardens are to be rejuvenated with high yielding varieties and through improved high production technologies.

Project components

- Distribution of quality hybrid seedlings- covered in all blocks
- Supply of MN mixtures, drip irrigation components, power operated sprayers - to be implemented in all blocks
- Supply of pheromone traps for Red palm weevil and Rhinoceros beetle- to be covered in Andipatti, Kadamalaikundu, Periyakulam and Theni blocks
- Distribution of tree climbers, of coconut shredder & solar copra drier - to be covered in all blocks

Budget

It is proposed to incur ₹.3784.99 Lakh over a period of five years with the finance facilities under the NADP.

Expected outcome

The proposed interventions are to enhance the Coconut yield. Based on the profitability in coconut cultivation, it is expected that the coconut area would increase from 5 to 10 per cent from the existing area under coconut.

Implementing Agency

Department of Agriculture

Table 4.8. Budget for interventions in Coconut

(₹. in Lakh)

Sl. No	Components	Unit	Unit cost	Blocks covered	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	0.0006	All Blocks	12500	7.50	13060	7.84	13590	8.15	14150	8.49	15100	9.06	68400	41.04
2	Distribution of Tall Seedlings	No	0.0004	All Blocks	8450	3.38	8900	3.56	9500	3.80	10400	4.16	10700	4.28	47950	19.18
3	Boom sprayer	No	0.2	B2,B3,B4, B7,B8	11	2.20	11	2.20	11	2.20	11	2.20	11	2.20	55	11.00
4	Distribution of power operated coconut leaf shredder	No	0.6	All Blocks	38	22.80	46	27.60	54	32.40	62	37.20	70	42.00	270	162.00
5	Distribution of MN mixture	Ha	0.1	All Blocks	1250	125.00	1312	131.20	1373	137.30	1434	143.40	1554	155.40	6923	692.30
6	Distribution of Pheromone traps for Red palm weevil/ Rhinocerous beetle	Ha	0.016	B1,B5,B6, B7	170	2.72	177	2.83	182	2.91	188	3.01	195	3.12	912	14.59
7	Distribution of power operated rocker sprayer	No	0.1	All Blocks	47	4.70	55	5.50	63	6.30	71	7.10	80	8.00	316	31.60
8	Distribution of tree climbers	No	0.15	All Blocks	16	2.40	24	3.60	32	4.80	40	6.00	48	7.20	160	24.00
9	Drip irrigation	Ha	0.35	All Blocks	400	140.00	400	140.00	400	140.00	400	140.00	400	140.00	2000	700.00
10	Intercropping with green manures	Ha	0.03	All Blocks	860	25.80	913	27.39	956	28.68	1000	30.00	1088	32.64	4817	144.51
11	Management of Black headed caterpillar	Ha	0.05	B1,B5,B6	40	2.00	43	2.15	46	2.30	49	2.45	53	2.65	231	11.55
12	Replanting and Rejunation of coconut gardens	Ha	0.45	B6,B7,B5, B1	0	0.00	0	0.00	400	180.00	400	180.00	400	180.00	1200	540.00
13	Demonstration on Integrated fertiliser management	Ha	0.75	All Blocks Except B1	121	90.75	123	92.25	275	206.25	277	207.75	329	246.75	1125	843.75

Sl. No	Components	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
14	Distribution of coconut seedlings to school children	No	0.0004	All Blocks B3	1550	0.62	1700	0.68	2150	0.86	2200	0.88	2250	0.90	9850	3.94
15	Control of Eriophid mite	No. of tree	0.0002	All Blocks Except B5	5300	1.06	5700	1.14	6200	1.24	6500	1.30	6850	1.37	30550	6.11
16	Control of slug caterpillar	No. of tree	0.0003	All Blocks Except B3,B5	3150	0.95	3400	1.02	3650	1.10	3800	1.14	4050	1.22	18050	5.42
17	Training on neera production	Batch es	0.25	B1,B6,B4	3	0.75	7	1.75	2	0.50	2	0.50	2	0.50	16	4.00
18	Distribution of wheel barrow	No	0.04	All Blocks Except B4	350	14.00	350	14.00	350	14.00	350	14.00	350	14.00	1750	70.00
19	corpus fund release for FPG (2000 nos.)	No	5	All Blocks	16	80.00	16	80.00	21	105.00	19	95.00	20	100.00	92	460.00
	Grand Total					**526.63**		**544.71**		**877.79**		**884.58**		**951.29**		**3784.99**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.9. Training to farmers

Enhancing the livelihood of farmers through training

Agricultural extension is being provided at the Block level and below, under the Extension Reforms scheme being implemented. Contact them or any other functionary of the State Government in Agriculture and allied departments to get answers for the queries, information about any Programme / Scheme and appropriate technologies for the area or individual farmer. 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 bigger profits in the long run.

Project components

1. Training of 536 Groups of Seed Village Farmers in quality Seed Production technology and Training of Farmers under Mission Soil Health Card - to be covered in all blocks
2. State level and interstate level training programmes to farmers- to be covered in all blocks
3. Awareness campaigns- to be covered in all blocks except Bodinaickanur

Budget

It is proposed to incur ₹. 94.40 Lakh over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The project will results better income to farmers. They may learn many things to improve their knowledge of cultivation if they listen this programme 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 4.9. Budget requirement for Training

(₹ in Lakh)

Sl. No	Cafeteria of Activities	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Training of Farmers															
1	Inter State Training of Farmers	Nos.	1.25	All Blocks	4	5.00	4	5.00	4	5.00	4	5.00	4	5.00	20	25.00
2	Training of 536 Groups of Seed Village Farmers in quality Seed Production technology.	Nos.	0.1	All Blocks	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	40	4.00
3	Training of Farmers under Mission Soil Health Card	Nos.	0.15	All Blocks	6	0.90	6	0.90	6	0.90	6	0.90	6	0.90	30	4.50
4	With in the district training of Farmers	Nos.	0.1	B2,B5	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	40	4.00
5	With in the State training of Farmers	Nos.	1.2	B3,B8	2	2.40	2	2.40	2	2.40	2	2.40	2	2.40	10	12.00
	Training of Farmers With in the district															
6	Awareness campaigns	Nos.	0.1	All Blocks Except B2	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	40	4.00
7	Cotton	Nos.	0.1	All Blocks Except B8,B4,B1,B3	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20	2.00
8	Groundnut	Nos.	0.1	B8,B4,B1,B2	5	0.50	5	0.50	5	0.50	5	0.50	5	0.50	25	2.50
9	IFS	Nos.	0.1	B1,B4,B7,B8	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20	2.00
10	Major & Minor Millets	Nos.	0.1	B3,B6,B7,B8	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20	2.00
11	Moisture conservation practices	Nos.	0.1	B4,B7,B8	3	0.30	3	0.30	3	0.30	3	0.30	3	0.30	15	1.50
12	oil Palm	Nos.	0.1	B2,B3,B4,B5, B7,B8	7	0.70	7	0.70	7	0.70	7	0.70	7	0.70	35	3.50
13	Organic cultivation practices	Nos.	0.1	B3,B5,B4,B7, B8	5	0.50	5	0.50	5	0.50	5	0.50	5	0.50	25	2.50
14	Paddy	Nos.	0.1	B4,B7,B8	3	0.30	3	0.30	3	0.30	3	0.30	3	0.30	15	1.50
15	Pulses	Nos.	0.1	All Blocks Except B3	9	0.90	9	0.90	9	0.90	9	0.90	9	0.90	45	4.50

Sl. No	Cafeteria of Activities	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
16	Sugarcane	Nos.	0.1	B6,B2,B1,B3, B5	5	0.50	5	0.50	5	0.50	5	0.50	5	0.50	25	2.50
	Exposure visit of Farmers															
17	Rodent Pest Management Demonstration	Nos.	0.04	B4,B6,B7,B8	7	0.28	7	0.28	7	0.28	7	0.28	7	0.28	35	1.40
18	With in State Exposure visit	Nos.	0.4	B3,B4,B8	3	1.20	3	1.20	3	1.20	3	1.20	3	1.20	15	6.00
19	Organisation of Kisan gosthies on Soil test based nutrient application (Campaign)	Nos.	0.15	All Blocks Except B3	6	0.90	6	0.90	6	0.90	6	0.90	6	0.90	30	4.50
20	With in the district exposure visit	Nos.	0.15	All Blocks Except B1,B3	6	0.90	6	0.90	6	0.90	6	0.90	6	0.90	30	4.50
	TOTAL					**18.88**		**18.88**		**18.88**		**18.88**		**18.88**		**94.40**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.10. Infrastructure

Facilities for Seed production

Seed is the most basic input in agriculture. Therefore, the sustained supply of the quality seeds will continue to be a key factor for augmenting agricultural growth. The seed processing is a vital part of the seed production activities and the State Government has accorded high priority. In view of above, efforts have to be taken with the objective of production of quality seeds of agricultural crops through scientific methods and adopting appropriate processing techniques through the establishment and modernization of State seed processing plants.

After harvesting, cleaning, drying, processing, and packaging, the representative samples of seed lot are required to be taken and sent to the laboratory for quality testing. From the test results, genetic, physical, physiological, and health qualities of seeds are determined. Different countries have set their own standards to find out these qualities in the seed lot. The National Seed Board, for instance, has approved maximum amount of moisture content, minimum germination potential, and minimum physical purity in foundation, certified and truthfully labelled seeds of different crops as basic seed standards. The test results must conform the approved seed standards to send the seeds in the market for commercial transactions.

Establishment of Laboratories

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. To have effective quality control of inputs, quality inspectors are to be appointed.

The Agricultural Research - NABL Accreditation lab, Organic Fertilizer Testing laboratory, Bio-Fertilizer Quality Control Laboratory, Pesticide Residual Laboratory and laboratory for leaf analysis for selective nutrient application, Soil Testing Laboratory and Fertilizer Control Laboratory, Strengthening of Mobile Soil Testing Laboratory for Ensuring Soil Health were proposed.

The major interventions are

1. Additional Seed Godowns to be covered in Cumbum & Uthampalayam blocks and Bag closure were covered in all blocks
2. Construction of IAEC with vehicle shed and compound wall- to be covered in all blocks
3. Construction of Seed Processing Unit Machineries – to be covered in Periyakulam block
4. Construction of of Sub-AEC- to be covered Andipatti and kadamalaikundu
5. Dunnage, Electronic platform balance and Moisture meter to be covered in all blocks
6. Establishment of Thrashing floor/drying yard- to be covered Kadamalaikundu and Theni blocks
7. Strengthening of FCL-to be covered Chinnamanur block
8. Infrastructure for farm nurseries to be covered in all blocks
9. Strengthening of KVK/ training institute to be covered in all blocks

Budget

It is proposed to incur ₹. **3172.93** Lakh over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The projects will provide better facility to farmers. They may learn many things to improve their knowledge of cultivation if they listen this programme 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 4.10. Budget requirement for Infrastructure

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Seed godown (300 MT)	Nos.	2500000	B2	1	25.00	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00
2	Seed Processing Unit Machineries	Nos.	2650000	B6	1	26.50	0	0.00	0	0.00	0	0.00	0	0.00	1	26.50
3	Additional Seed Godown	Nos.	1250000	B4,B8	2	25.00	0	0.00	0	0.00	0	0.00	0	0.00	2	25.00
4	Construction of Integrated Agricultural Extension Centre with vehicle shed and compound wall	Nos.	25000000	All Blocks	7	1750.00	1	250.00	0	0.00	0	0.00	0	0.00	8	2000.00
5	Construction of Sub-Agricultural Extension Centre (498 Nos.)	Nos.	3000000	All Blocks B1,B5	13	390.00	0	0.00	0	0.00	0	0.00	0	0.00	13	390.00
6	Strengthening of Fertilizer Control Lab	Nos.	6000000	B3	1	60.00	0	0.00	0	0.00	0	0.00	0	0.00	1	60.00
7	Establishment of Threshing floor/drying yard	Nos.	500000	B5,B7	4	20.00	0	0.00	0	0.00	0	0.00	0	0.00	4	20.00
8	Dunnage	Nos.	7500	All Blocks	20	1.50	1	0.08	0	0.00	0	0.00	0	0.00	21	1.58
9	Moisture meter	Nos.	25000	All Blocks	20	5.00	1	0.25	0	0.00	0	0.00	0	0.00	21	5.25
10	Bag closure	Nos.	10000	All Blocks	20	2.00	1	0.10	0	0.00	0	0.00	0	0.00	21	2.10
11	Electronic platform balance	Nos.	150000	All Blocks	20	30.00	1	1.50	0	0.00	0	0.00	0	0.00	21	31.50
12	Tarpaulin	Nos.	25000	All Blocks	16	4.00	16	4.00	16	4.00	16	4.00	16	4.00	80	20.00
13	Office Furnishings and other amenities	Nos.	200000	All Blocks	8	16.00	0	0.00	0	0.00	0	0.00	0	0.00	8	16.00
14	Strengthening of training institute / nursery / FTC / KVK	Nos.	50000000	All Blocks	0	0.00	0	0.00	0	0.00	1	500.00	0	0.00	1	500.00
15	Infrastructure for empowerment of coconut nurseries	Nos.	5000000	All Blocks	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00
	Grand total					**2355.00**		**305.93**		**4.00**		**504.00**		**4.00**		**3172.93**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.11. Soil Health Management

It has been observed that the average productivity of major crops in Tamil Nadu is only about 60 percent of the potential yield. The reason may be due to decline in organic matter content of the soil of the State leading 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. Besides, efficient earthworm cultures should be provided for vermicompost unit by providing subsidy for the establishment of vermicompost units with training in vermicompost.

Project Component:

- Reclamation of acid to be covered in all blocks and alkali soils Chinnamanur, Periyakulam, and Uthamapalayam blocks
- Production of enriched FYM and composting of farm waste through *Pluerotus* were to be covered in all blocks except in Cumbum block and Theni blocks
- Distribution of blue green algae to be covered in Chinnamanur, Kadamalaikundu and Uthamapalayam blocks
- Establishment of permanent and HDPE vermicompost units - to be covered in Andipatti,Cumbum and Uthamapalayam blocks
- Establishment of model organic villages- to be covered in Uthamapalayam block
- Adoption of PGS certification through cluster approach to be covered in Chinnamanur block
- Distribution of soil health card to be covered in Uthamapalayam block
- Empowering the entrepreneurship for seed production / green manuring to be covered in all blocks except in Andipatti block

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 Theni district is ₹. 495.92 Lakh.

Expected Outcome:

Healthy soils are the foundation for profitable, productive and environmentally sound agricultural systems. In an agricultural context, it refers to the ability of the soil to sustain agricultural productivity and protect environmental resources. The proposed soil health

management practices will improve soil health by increasing productivity and profitability immediately and into the future.

Implementing Agency:

The projects will be implemented by the Department of Agriculture.

Table 4.11. Budget requirement for Soil Health Management

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Soil Health Management															
1	Permanent Vermi compost units	Cluster Nos.	50000	All Blocks Except B1	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
2	HDPE Vermi compost units	Kit Nos	12000	B1,B5,B8	10	1.20	10	1.20	10	1.20	10	1.20	10	1.20	50	6.00
3	Reclamation of Alkali Soil	MT	50000	B3,B6,B8	17	8.50	17	8.50	17	8.50	17	8.50	17	8.50	85	42.50
4	Empowering the entrepreneurship for seed production / green manuring	Nos	4000	All Blocks Except B1	272	10.88	272	10.88	272	10.88	272	10.88	272	10.88	1360	54.40
5	Establishment of Model organic villages	Ha	1000000	B8	1	10.00	1	10.00	1	10.00	1	10.00	1	10.00	5	50.00
6	Adoption of PGS certification through cluster approach	Nos	1495000	B3	4	59.80	4	59.80	4	59.80	4	59.80	4	59.80	20	299.00
7	Procurement and Distribution of Blue Green Algae	Nos	2500	B3,B4,B8	36.5	0.91	36.5	0.91	36.5	0.91	36.5	0.91	36.5	0.91	182.5	4.56
8	Production of Enriched FYM	MT	2500	All Blocks Except B5,B7	77.5	1.94	77.5	1.94	77.5	1.94	77.5	1.94	77.5	1.94	387.5	9.69
9	Composting of Farm Waste Through Pluerotus (Production and Distribution of Kits)	MT	200	B3,B4,B8	210	0.42	210	0.42	210	0.42	210	0.42	210	0.42	1050	2.10
10	Distribution of Soil Health Card	Ha	300	B8	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	5	0.02
11	Distribution of Enriched Pressmud (37.5 Mt/ha)	units	1000	B7,B8	53	0.53	53	0.53	53	0.53	53	0.53	53	0.53	265	2.65
	Total					**99.18**		**99.18**		**99.18**		**99.18**		**99.18**		**495.92**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

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 us with 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 than in irrigated areas. With proper management, rainfed areas have the potential of contributing a larger share to 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 Enhancement of farmer's income and livelihood support for reduction of poverty in rainfed areas.

Project components

- Stress Management in crops by the Application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/ Kcl Spray to be covered in Bodinaickanur, Chinnamanur, Cumbum, and Uthamapalayam blocks
- Milch Animal (1 no) + 1 ha cropping system with inter crop & border plantation like castor/sesbania etc. to be covered in Andipatti, Bodinaickanur, Chinnamanur, Cumbum, , Periyakulam, and Uthamapalayam blocks
- Small ruminant (9+1) + 1 ha cropping system with inter crop & border plantation like castor/sesbania etc. - to be covered in Bodinaickanur, Chinnamanur, Cumbum, , Periyakulam, and Uthamapalayam blocks
- Organic Mulching to be covered in Chinnamanur block

Budget

It is proposed to incur ₹. 57.18 Lakh over a period of five years 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	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Stress Management in crops by the Application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/ Kcl Spray	Ha	0.004	B2,B3,B4, B8	360	1.44	360	1.44	360	1.44	360	1.44	510	2.04	1950	7.80
2	Milch Animal (1 no) + 1 ha cropping farming system (Cropping system with inter crop & border plantation like castor/sesbania etc.) @ Rs.27500/ as subsidy per Unit	Ha	0.55	B1,B2,B3, B4,B6,B8	11	6.05	11	6.05	11	6.05	11	6.05	7	3.85	51	28.05
3	Small ruminant (9+1)+ 1 ha Tree based farming system (Cropping system with inter crop & border plantation like castor/sesbania etc.) @ Rs.23500/ as subsidy per Unit	Ha	0.47	B2,B3,B4, B6,B8	8	3.76	8	3.76	8	3.76	8	3.76	7	3.29	39	18.33
4	Organic Mulching	Ha	0.06	B3	10	0.60	10	0.60	10	0.60	10	0.60	10	0.60	50	3.00
	Grand Total					**11.85**		**11.85**		**11.85**		**11.85**		**9.78**		**57.18**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.13. Integrated Pest Management (IPM)

Integrated Pest Management also known as integrated pest control is a broad based approach that integrates practices for economic control of pests. IPM aims to suppress pest populations below the economic injury level. IPM used in agriculture, horticulture, forestry, human habitations, preventive conservation and general pest control, including structural pest management. The principle is on control, not eradication. IPM holds that wiping out an entire pest population is often impossible, and the attempt can be expensive and unsafe. IPM programmes first work to establish acceptable pest levels, called action thresholds, and apply controls if those thresholds are crossed. The IPM process starts with monitoring, which includes inspection and identification, followed by the establishment of economic injury levels.

Integrated pets management employs a variety of actions including cultural controls, including physical barriers, biological controls, including adding and conserving natural predators and enemies to the pest and finally chemical controls or pesticides.

Farmers Field Schools (FFS) is group based learning process that has been used by a government to promote Integrated Pest Management (IPM). The FFS is a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation. It was developed to help farmers tailor their IPM practices to diverse and dynamic ecological conditions.

Interventions

1. Farmers Field Schools (FFS) to be covered in all blocks
2. Field days to be covered in Bodinaickanur, Cumbum, Kadamalaikundu, Theni and Uthamapalayam blocks
3. Integrated Pest Management Villages to be covered in Bodinaickanur, Cumbum, and Theni blocks

Budget

It is proposed to incur ₹. 51.00 Lakh over a period of five years 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 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 4.13. Budget requirement for IPM

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Farmers Field Schools (FFS)	Nos.	20000	All Blocks	40	8.00	40	8.00	40	8.00	40	8.00	40	8.00	200	40.00
2	Field days	No.	20000	B2,B4,B5 B7,B8	5	1.00	5	1.00	5	1.00	5	1.00	5	1.00	25	5.00
3	IPM School	Nos.	40000	B2,B4,B7	3	1.20	3	1.20	3	1.20	3	1.20	3	1.20	15	6.00
	Total					**10.20**		**10.20**		**10.20**		**10.20**		**10.20**		**51.00**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.14. Machineries

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 Theni district.

Project Component:

- Distribution of tractor were covered in all blocks except in Andipatti, Bodinaickanur, and Kadamalaikundu mini tractor Andipatti, Chinnamanur, Cumbum, and Uthamapalayam blocks

- Distribution of MB plough covered in Chinnamanur, Theni, Uthamapalayam blocks, rotavator to be covered in all blocks except in Kadamalaikundu and Periyakulam blocks, baler to be covered in Cumbum and Uthamapalayam blocks and paddy transplanter to be covered in Bodinaickanur,Cumbum and Uthamapalayam blocks
- Distribution of pump set, mobile sprinklers, rain guns and PVC Pipes to carry irrigation water from source to field to be covered in all blocks
- Solar power pump system to be covered in Cumbum and Uthamapalayam blocks and Solar light trap to be covered in Bodinaickanur, Cumbum, Theni, Uthamapalayam blocks
- Distribution of sprayers (power, hand and battery operated sprayer) to be covered in all blocks
- Distribution of chaff cutter covered in Chinnamanur, Theni and Uthamapalayam blocks, multi crop thrasher were covered in all blocks except Bodinaickanur, Tarpaulins to be covered in all blocks except Kadamalaikundu and Periyakulam blocks
- Distribution of weeder (manual, cono weeder and rotary power weeder) to be covered in Uthamapalayam block

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 ₹.2649.67 Lakh.

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 4.14. Budget requirement for Farm Machineries

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Farm Mechanization															
1	Solar light trap	No.	4000	B2,B4,B7,B8	85	3.40	85	3.40	85	3.40	85	3.40	85	3.40	425	17.00
2	Battery operated sprayer	Nos.	4000	All Blocks Except B1	75	3.00	75	3.00	75	3.00	75	3.00	75	3.00	375	15.00
3	Power operated sprayer	Nos.	8000	All Blocks Except B5,B6	70	5.60	76	6.08	82	6.56	88	7.04	96	7.68	412	32.96
4	Hand operated sprayer	Nos.	1500	All Blocks	65	0.98	73	1.10	81	1.22	89	1.34	97	1.46	405	6.08
5	Distribution of Baler	Nos	350000	B4,B8	2	7.00	13	45.50	15	52.50	17	59.50	19	66.50	66	231.00
6	Distribution of chaff cutter	Nos	25000	B3,B7,B8	5	1.25	5	1.25	5	1.25	5	1.25	5	1.25	25	6.25
7	Distribution of combine harvester	Nos	1700000	B4,B8	2	34.00	4	68.00	6	102.00	8	136.00	10	170.00	30	510.00
8	Distribution of Laser leveller	Nos	380000	B2,B3,B4,B7,B8	1	3.80	2	7.60	3	11.40	4	15.20	9	34.20	19	72.20
9	Distribution of MB plough	Nos	80000	B3,B7,B8	6	4.80	6	4.80	6	4.80	6	4.80	6	4.80	30	24.00
10	Distribution of Mini Tractor	Nos	300000	B1,B3,B4,B8	7	21.00	11	33.00	15	45.00	19	57.00	23	69.00	75	225.00
11	Distribution of Mobile Sprinklers	Ha	30000	All Blocks	24	7.20	32	9.60	40	12.00	48	14.40	56	16.80	200	60.00
12	Distribution of multicrop thrasher	Nos	400000	All Blocks Except B2	0	0.00	0	0.00	0	0.00	14	56.00	14	56.00	28	112.00
13	Distribution of Paddy transplanter	Nos	1200000	B2,B4,B8	2	24.00	4	48.00	4	48.00	5	60.00	6	72.00	21	252.00
14	Distribution of Power Weeder	Nos	65000	B8	1	0.65	2	1.30	3	1.95	4	2.60	5	3.25	15	9.75
15	Distribution of Powertiller	Nos	150000	B1,B2,B3	5	7.50	7	10.50	9	13.50	11	16.50	13	19.50	45	67.50
16	Distribution of Pumpset	Nos	30000	B4,B8	26	13.50	27	19.50	28	25.50	29	31.50	30	37.50	140	127.50
17	Distribution of Rain guns	Ha	40000	All Blocks	16	6.40	24	9.60	32	12.80	40	16.00	48	19.20	160	64.00

Sl. No	Components	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
18	Distribution of Rotavator	Nos	80000	All Blocks Except B5,B6	25	20.00	32	25.60	39	31.20	46	36.80	53	42.40	195	156.00
19	Distribution of Tarpaulins	Nos	8000	All Blocks Except B5,B6	115	9.20	122	9.76	129	10.32	136	10.88	149	11.92	651	52.08
20	Distribution of Tractor	Nos	600000	All Blocks Except B1,B2,B5	11	66.00	11	66.00	11	66.00	11	66.00	11	66.00	55	330.00
21	PVC Pipes to carry Irrigation water from source to field	Unit	40000	All Blocks	75	30.00	82	32.80	89	35.60	98	39.20	105	42.00	449	179.60
22	Solar power pump system	Nos	600000	B4,B8	2	6.65	4	13.30	6	19.95	8	26.60	10	33.25	30	99.75
	Total					**275.93**		**419.69**		**507.95**		**665.01**		**781.11**		**2649.67**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.15. Strengthening of State Seed Farm

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on the quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15–20 per cent depending upon the crop and it can be further raised up to 45% with efficient management of other inputs. The total seed requirement of the country amounts to 2.56 Lakh tonnes. However, about 20 per cent of the total seed requirement is met as quality seeds, while the rest is managed by farm saved seeds. The main reason for wider gap in agricultural crops, especially pulses and oilseeds was that most of the private and multinational companies are concentrating on high value and low volume crops like hybrid cotton, millets and vegetables, whereas only public institutions are producing and marketing high volume and low value crops like pulses and oilseeds. Hence, high emphasis has to be given for the production and supply of quality seeds of pulses and oilseeds to farmers and increase the Seed Replacement Rate. Hence, there is an urgent need for the State Seed Corporations also to transform themselves in tune with the industry in terms of infrastructure, technologies, approach and the management culture to be able to survive in the competitive market and to enhance their contribution in the national endeavour of increasing food production to attain food & nutritional security.Therefore, the infrastructure facilities at the SSFs like levelled land, more area, assured irrigation, thrashing floor, drying yard, processing units, storage etc., are essential to produce, process and pack quality seeds. Therefore, the strengthening of state seed farms is aimed for quality seed production in Tamil Nadu.

Project components

- Irrigation component were covered in all blocks
- Supply of machineries were covered in all blocks
- Infrastructure development for seed production were covered in all blocks

Budget

It is proposed to incur ₹.**325.97** Lakh over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result it will Enhance production of quality seeds of Crop varieties and Ensure timely delivery of seeds to farmers and it will increase supply of good quality seed which increase the production of the crops and the income of the farmers of Tamil Nadu.

Implementing Agency

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

Table 4.15. Budget requirement for State seed Farms

(₹ in Lakh)

Sl. No	Components	unit	unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**Soil Fertility Improvement and Land development works in SSF**	ac	2	B4	0	0.00	40	0.00	0	0	0	0.00	0	0.00	40	80.00
II	**Irrigation Component**															
1	Solar pumpsets	Nos	6	B4	0	0.00	1	0.00	0	0.00	0	0.00	0	0.00	1	6.00
2	Laying of pipelines	mt	0.05	B4	0	0.00	1000	0.00	0	0.00	0	0.00	0	0.00	1000	50.00
3	Rain gun	nos	0.4	B4	0	0.00	6	2.40	0	0.00	0	0.00	0	0.00	6	2.40
4	Mobile sprinkler	nos	0.3	B4	0	0.00	6	1.80	0	0.00	0	0.00	0	0.00	6	1.80
5	New bore well with EB connection	nos	8	B4	0	0.00	3	24.00	0	0.00	0	0.00	0	0.00	3	24.00
6	Deepening of open well	nos	8	B4	0	0.00	1	8.00	0	0.00	0	0.00	0	0.00	1	8.00
7	Farm Pond	nos	1	B4	0	0.00	0	0.00	1	1.00	1	1.00	0	0.00	2	2.00
III	**Machineries**															
8	Dunnage (Poly Pallets)	nos	0.075	B4	0	0.00	50	3.75	0	0.00	0	0.00	0	0.00	50	3.75
9	Seed grading machine	nos	20	B4	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	20.00
10	Paddy Transplanter	nos	5	B4	0	0.00	0	0.00	1	5.00	0	0.00	0	0.00	1	5.00
11	Rotavator	nos	1	B4	0	0.00	1	1.00	0	0.00	0	0.00	0	0.00	1	1.00
12	Tractor and accessories	nos	10	B4	0	0.00	1	10.00	0	0.00	0	0.00	0	0.00	1	10.00
13	Tarpaulin	nos	0.1	B4	0	0.00	10	1.00	0	0.00	0	0.00	0	0.00	10	1.00
14	Generator	nos	7	B4	0	0.00	1	7.00	0	0.00	0	0.00	0	0.00	1	7.00

Sl. No	Components	unit	unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
IV	**Civil Works**															
15	Farm protection structure	mt	0.15	B4	0	0.00	600	90.00	0	0.00	0	0.00	0	0.00	600	90.00
16	New Threshing floor	nos	5	B4	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00	1	5.00
17	culvert	nos	6	B4	0	0.00	1	6.00	0	0.00	0	0.00	0	0.00	1	6.00
18	Farm office renovation	nos	3	B4	0	0.00	1	3.00	0	0.00	0	0.00	0	0.00	1	3.00
19	Farm connectivity	Meter	0.015	B4	0	0.00	1	0.015	0	0.00	0	0.00	0	0.00	1	0.015
	Total					**0.00**		**313.97**		**6.00**		**1.00**		**5.00**		**325.97**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.16. Information Technology in Agriculture

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 must evolve with times and adjust to meet the needs of modern people. By adapting and making use of IT to help improve agricultural progress and, everyone benefits from the union of these sectors.

Role of IT in Agriculture

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 a 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 the information not merely useful, but necessary to remain competitive.

Project Components

Components include input devices, output devices, processors, storage devices, software, networking devices, transmission media and other accessories.

- Connectivity charges were covered in all blocks
- Print cum Scanner were covered in all blocks
- Xerox machine were covered in all blocks
- Antivirus software were covered in all blocks

Budget

It is proposed to incur ₹. 35.96 Lakh over a period of five years 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 4.16. Budget requirement for Information Technology (IT)

(₹ in Lakh)

Sl. No	Components	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Connectivity Charges	Nos	11000	All Blocks	8	0.88	0	0.00	0	0.00	0	0.00	0	0.00	8	0.88
2	Printer cum Scanner	Nos	20000	All Blocks	8	1.60	0	0.00	0	0.00	0	0.00	0	0.00	8	1.60
3	UPS and Electrical Accessories	Nos	35000	All Blocks Except B2	7	2.45	0	0.00	0	0.00	0	0.00	0	0.00	7	2.45
4	Xerox machine	Nos	75000	All Blocks	8	6.00	0	0.00	0	0.00	0	0.00	0	0.00	8	6.00
5	Laptop/Desktop	Nos	50000	All Blocks	8	4.00	0	0.00	0	0.00	0	0.00	0	0.00	8	4.00
6	Anti -virus software	Nos	2500	All Blocks	16	0.40	16	0.40	16	0.40	16	0.40	16	0.40	80	2.00
7	Television	Nos	100000	All Blocks Except B2	7	7.00	0	0.00	0	0.00	0	0.00	0	0.00	7	7.00
8	Colour printer	Nos	15000	All Blocks Except B2	7	1.05	0	0.00	0	0.00	0	0.00	0	0.00	7	1.05
9	4G Internet - Dongle	Nos	2500	All Blocks Except B2	7	0.18	0	0.00	0	0.00	0	0.00	0	0.00	7	0.18
10	**Equipments for Documentation**															
a	Camera	Nos	25000	All Blocks	8	2.00	0	0.00	0	0.00	0	0.00	0	0.00	8	2.00
b	GPS instrument	Nos	20000	All Blocks Except B2	7	1.40	0	0.00	0	0.00	0	0.00	0	0.00	7	1.40
c	Android mobile	Nos	15000	All Blocks Except B2	14	2.10	0	0.00	0	0.00	0	0.00	0	0.00	14	2.10
d	LCD projector	Nos	75000	All Blocks Except B1,B2	6	4.50	0	0.00	0	0.00	0	0.00	0	0.00	6	4.50
e	Air conditioner for computer room	Nos	40000	B1,B2	2	0.80	0	0.00	0	0.00	0	0.00	0	0.00	2	0.80
	Total					**34.36**		**0.40**		**0.40**		**0.40**		**0.40**		**35.96**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.1.17. Agriculture research infrastructure and development in Theni district

Cultivation of field crops, fruits and vegetables are the most preferred crops of the farmers of Theni district having areas with moderate drainage, above medium soil depth and moderate quality of irrigation water. Increasing the yield potential of the major crops has contributed very significantly to a rising food supply over the past 50 years, which has until recently more than kept pace with rising global demand. The photosynthesis is a fundamental process in crops and the carbon fixed during this process is the major contributor to the plant growth and development and to the overall yield and performance in a crop context. Based on this background, the present research is proposed to establish the facility for photosynthesis improvement in major crops to promote a new agricultural revolution and contribute towards the challenge of meeting global food demands. Improving photosynthesis is the most significant opportunity for raising the yield potential of major crops and addresses the new risks associated with future climate change conditions.

Farmers are mostly unaware of quality planting materials. The causes for low productivity in agriculture are declining of in soil organic matter, soil fertility status, land degradation and use of poor quality water apart from lack of awareness on balanced fertilization among farmers and insufficient soil analytical timely advisory services. Soil and water sampling and analysis will help to monitor the changes in soil fertility, water quality and support in planning for crop and location specific balanced fertilization based on soil test value to enhance crop productivity. Protected cultivation is also a booming alternative production system involving hi-tech and intensive cultivation practices mainly for urban and export demands of horticultural crops. This system provides opportunities for increasing the productivity by optimal utilization of resources and protecting the crops from extreme temperatures, high wind, velocity heavy rains, destructive storms, pests and diseases.

The most damaging ecological disturbance is injudicious use of pesticides in the existence of the high concentration of pesticide residues in the food chain including vegetables and other crops. To produce pesticide free agricultural produce, it is highly necessary to introduce bio control as one of the major tools for pest management in vegetable crops. Training and demonstrations on precision water and nutrient usage, INM,IPM, use of natural plant enemies, cultivation under protected structures etc. imparts confidence among the farmers in agriculture and make them to adopt to harvest bumper crop and to get triple the income. In this regard setting up of training institute will be off immense use in changing the economic and social status of the farmers, skilled workers, rural women and self-entrepreneurship development among the stake holders These problems all necessitate the need for making

them aware of good farming practices from research infrastructure which may provide better infrastructure facilities and higher agricultural production by adopting the following research infrastructure facilities so they can get a better knowledge on crops for getting higher agricultural production at Theni district.

Project components

- Establishment of Training Institutes at Grape Research Station, Theni to be covered in Uthamapalayam block
- Establishment of Farmers Training Centre to be covered in Uthamapalayam block
- Protected model precision farming systems for greens, vegetables and flower cultivation to be covered in Periyakulam block
- Establishment of Mother block plant nursery to be covered in Periyakulam and Uthamapalayam blocks
- Establishment of Nursery with sales outlet to be covered in Periyakulam block
- Establishment of Bio control laboratory to be implemented in Periyakulam and Uthamapalayam blocks
- Establishment of Model mechanized research farm to be implemented in Periyakulam and Uthamapalayam blocks
- Establishment of Advanced grain quality analysis laboratory to be implemented in Periyakulam block
- Establishment of Automated nematode extraction units and laboratories- to be covered in Periyakulam and Uthamapalayam blocks
- Establishment of Entrepreneurial Development Centre to be implemented in Periyakulam block
- Strengthening of Post-harvest Technology Centre to be implemented in Periyakulam block
- Establishment of Plant Molecular Biological Laboratory to be implemented in Periyakulam block
- Strengthening of Plant Tissue Culture Laboratory to be implemented in Periyakulam block
- Establishment of Microbiological laboratory to be implemented in Periyakulam block
- Establishment of Concrete Extraction Unit to be implemented in Periyakulam block
- Construction of Farmers Trainees Hostel to be implemented in Periyakulam block

Budget

The budget requirement for the above research and development activities is estimated at ₹.**1135.00** Lakh over a period of five years.

Expected outcome

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

Implementing agency

Tamil Nadu Agricultural University will be implementing the project.

Table.4.17. Budget for Agricultural Research infrastructure and development

(₹ in Lakh)

Sl. No.	Interventions	Blocks Covered	Unit Cost	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
				Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
I	**Research Infrastructure**														
1	Establishment of Training Institutes at Grape Research Station, Theni	Uthamapalayam	100	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
2	Establishment of Farmers Training Centre	Uthamapalayam	100	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
3	Protected model precision farming systems for greens, vegetables ad flower cultivation	Periyakulam	150	1	150.00	0	0.00	0	0.00	0	0.00	0	0.00	1	150.00
4	Establishment of mother block plant nursery	Periyakulam & Uthamapalayam	10	0	0.00	1	10.00	1	10.00	0	0.00	0	0.00	2	20.00
5	Establishment of nursery with sales outlet	Periyakulam	25	0	0.00	0	0.00	1	25.00	0	0.00	0	0.00	1	25.00
6	Establishment of biocontrol laboratory	Periyakulam & Uthamapalayam	80	1	80.00	0	0.00	0	0.00	1	80.00	0	0.00	2	160.00
7	Establishment of Model mechanized research farm	Periyakulam & Uthamapalayam	20	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00
8	Establishment of Advanced grain quality analysis laboratory	Periyakulam	50	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00
9	Establishment of Automated nematode extraction units, animal clinic, seed storagte & processing godowns, mist hamber, Department laboratories (9)	Periyakulam & Uthamapalayam	10	3	30.00	3	30.00	3	30.00	2	20.00	2	20.00	13	130.00
10	Establishment of Entrepreneurial Development Centre	Periyakulam	5	1	5.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00
11	Strengthening of Post harvest Technology Centre	Periyakulam	20	1	20.00	0	0.00	0	0.00	0		0	0.00	1	20.00
12	Establishment of Plant Molecular Biological Laboratory	Periyakulam	200	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00

Sl. No.	Interventions	Blocks Covered	Unit Cost	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
				Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
13	Strengthening of Plant Tissue Culture Laboratory	Periyakulam	20	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	20.00
14	Establishment of Microbiological laboratory	Periyakulam	10	1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	1	10.00
15	Establishment of Concrete Extraction Unit	Periyakulam	25	1	25.00	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00
16	Construction of Farmers Trainees Hostel	Periyakulam	100	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
17	Nematode management in nursery	Periyakulam	25	1	25.00	0	0.00	0	0.00	0	0.00	0	0.00	**1**	**25.00**
	Total				**465.00**		**290.00**		**285.00**		**100.00**		**20.00**		**1160.00**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

Table 4.18. Budget requirement for Agriculture Sector

(₹. in Lakh)

Sl. No	Components	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Paddy	622.09	661.22	702.32	737.23	791.93	3514.79
2	Millets	387.75	451.33	509.59	565.18	647.54	2561.39
3	Pulses	480.05	538.01	603.20	659.67	620.50	2901.43
4	Oilseeds	138.45	154.41	169.97	186.40	198.02	847.25
5	Oilpalm	31.97	35.06	38.39	39.99	41.80	187.21
6	Cotton	160.63	175.11	189.35	203.38	218.15	946.62
7	Sugarcane	665.79	666.61	668.67	670.49	672.98	3344.54
8	Coconut	526.63	544.71	877.79	884.58	951.29	3785.00
9	Training	18.88	18.88	18.88	18.88	18.88	94.40
10	Infrastructure	2355.00	305.93	4.00	504.00	4.00	3172.93
11	Soil Health Management	99.18	99.18	99.18	99.18	99.18	495.90
12	Rainfed Area Development	11.85	11.85	11.85	11.85	9.78	57.18
13	Integrated Pest Management	10.20	10.20	10.20	10.20	10.20	51.00
14	Farm Mechanization	275.93	419.69	507.95	665.01	781.11	2649.69
15	Strengthening of State Seed Farm	0.00	313.97	6.00	1.00	5.00	325.97
16	Agriculture Information Technology	34.36	0.40	0.40	0.40	0.40	35.96
	Total	**5818.76**	**4406.56**	**4417.74**	**5257.44**	**5070.76**	**24971.26**

4.2. Horticulture Sector

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 fibre which is very essential for the smooth movement of the digestive system. There are some fruits that give body energy 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. The major intervention are,

1. Area expansion in Grapes has to increased in Chinnamanur,Cumbum and Uthamapalayam.
2. Area expansion in TC Banana & TC Pineapple has to be increased all blocks.
3. Area expansion of Banana / Hill Banana sucker & Pine apple sucker has to be increased in all blocks.
4. Area expansion of Banana for leaf production has to be increased in all blocks except Chinnamanur.
5. Commercial production of choice fruits (Mangoosteen, Rambutan, Fig, Date palm, Durian, Carambola, Dragon fruit, Passion Fruit, Kiwi, Grapes, Strawberry, etc.,) has to be implemented in all blocks.
6. Commercial production of Traditional fruits (Woodapple, Manila Tamarind, Jamun, Ber, Karonda, Annona, Egg fruit, etc.,) has to be implemented all blocks.

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. The major intervention are,

1. Area expansion of Brinjal, Bhendi, Green Chillies have to be increased in all blocks.
2. Area expansion of Tomato has to be increased in all blocks.
3. Area expansion of Gourds including pumpkin and tinda has to be increased in all blocks.
4. Area expansion of Peas & Beans has to be increased in all blocks.
5. Area expansion of Small Onion has to be increased in all blocks.
6. Area expansion of Bellary Onion has to be increased in all blocks.
7. Area expansion of Annual Moringa has to be increased in all blocks.
8. Area expansion of Commercial production of choice vegetables (Bread fruit, Brussels sprout, Brocolli, Spring Onion, Knol Khol, Turnip, Winged Bean, Butter Bean, Chinese Cabbage, Lettuce, Leek, Porum, etc., has to be increased in all blocks.
9. Area expansion of Commercial production of location specific traditional vegetables (Athalakkai, Palu Pavakkai, Mullu kathiri, Poiyur kathiri, Kottapatti kathiri etc.,) has to be increased in all blocks.

b. Flower crops

The major flowers grown are Gundumalli, Mullai, Rose, Crossandra, Chrysanthemum, Marigold, Tuberose, Arali, Jathimalli 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 flowers and perform other operations, hence providing an opportunity to marginal and small farmers for generating more income, employment and promote greater involvement of women work force. Keeping this in mind, the promotion area of cultivation of traditional and cut flowers are planned for different flower crops. The major intervention are

1. Area expansion of loose flowers - Jasminum sp, Crossandra, Marigold, Rose, Chrysanthemum, Nerium, Torenia has to increased in all blocks .

2. Area expansion of Bulbous flowers - Tube rose, Gladioli, Dahlia, Bird of paradise, Heliconia, Tulip has to be increased in Andipatti, Uthamapalayam, Chinnamanur, Cumbum, Kadamalaikundu.

c. **Spice crops** to be covered in all blocks, but garlic alone is to be covered in Bodinaickanur, Periyakulam, and Theni blocks

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 lots of employment opportunities for the rural population. The demand of Indian spice is very much in other countries. Hence the production of spices has very much scope to meet that demand by huge production.

d. **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, bamboo, cocoa, coconut, arecanut (covered in Bodinaickanur block), oil palm, palmyrah, cashew, etc. So the promotion of cultivation of plantation crops in the potential districts will increase the economy of the farmer and also Indian economy.

The major inerventions are,

1. Area expansion of Coffee has to be increased in Bodinaickanur and Cumbum blocks.
2. Area expansion of Tea has to be increased in Bodinaickanur, Cumbum and Uthamapalayam blocks.
3. Area expansion of Cocoa and Cashew has to increased in all blocks.

Improving Infrastructural facilities for production

To increase the income of the horticultural farmers, support for the establishment of pandals, trellies, staking and propping polygreen houses, (tubular structure) have to be provided. Vegetables like bitter gourd, snake gourd, ribbed gourd, pandal avarai, pole beans, tomato, gherkin, cucumber, squash and in fruits grapes, musk melons and in spices pepper etc could be cultivated under pandal cultivation. Similarly, crops like peas, musk melon, pole beans, tomatoes, ivy gourd could be raised in trellies. High value vegetables like capsicum, beans and flowers like carnation, roses etc could be raised in poly houses.

Maintenance of Plantation

The existing fruit trees have to be maintained properly until they attain the fruit bearing stage and thereafter up to economically profitable bearing stage. This calls for proper maintenance of fruit trees with appropriate intercultural operations periodically. Regular maintenance of orchards / fruit trees would enhance the production / productivity as well.

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.

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.

1. UHDP in Papaya, Mango, Guava, Pomegranate, Acidlime area of cultivation has to increased in Bodinaickanur, Cumbum, Periyakulam, Theni and Uthamapalayam blocks.
2. HDP in Mango, Guava, Litchi, Pomegranate area of cultivation have to increased in all blocks.

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.

The major intervention are,

1. Area expansion of Normal Planting in lime / lemons, Sapota, Mango, Jack, pomegranate, Papaya and Guava has to be increased in all blocks.

Protected cultivation to be covered in all blocks

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 a high density planting in mango, guava and sapota in select districts of the State by providing subsidies. The Poly green house facility have to be implemented in all blocks Also Shad net facilities has to be implemented in all blocks of Theni district.

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 the overshadowing of internal bearing wood.

1. The Mango/Cashew – Rejuvenation has to be implemented in all blocks.
2. INM/IPM for Horticultural crops and Mulching have to implemented in all blocks.
3. Anti Bird net have to implement in Chinnamanur,Cumbum and Uthamapalayam blocks.

Organic farming- were covered in all blocks

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 cultivated organically, representing approximately 1.0 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. The Organic farming and PGS certification in 50 acre cluster have to implemented in all blocks. Also HDPE vermibed have to developed in all blocks

Post-Harvest Management- were covered in all blocks, integrated pack house was covered in Andipatti, and Kadamalaikundu and cold storage unit (5000 mt) was covered in Cumbum block

In agriculture, postharvest handling is the stage of crop production immediately following harvest, including cooling, cleaning, sorting and packing. Postharvest treatment largely determines the 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 by fresh produce, for example, as the residue from the contaminated washing water.

Marketing Interventions

Interventions to build the marketing system are essential such that marketing expenses should be shifted as an expense towards an investment. It's important that interactions between farmers and market intermediaries should match the image of marketing portrays.

Capacity building

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. Training, Seminar, Exposure Visits Publicity and Documentation has to be implemented in all districts.

Bee Keeping

Production of apiary honey in the country reached 10,000 tons, valued at about Rs.300 million. Bee-Keeping Industry is one of the important activities. The Government provides financial support to this Industry by way of providing grants for the supply of bee-hives to the Tribal on hilly areas, Scheduled Castes /Scheduled Tribes under Western Ghats Development Programmes, Hill Area Development Programme and Integrated Tribal Development Programme. The income earned by the farmers through bee-keeping activities is an additional income to their agricultural income. Honey industry in the country can well become a major foreign exchange earner if international standards are met. Beekeeping is an age-old tradition in India, but it is considered a no-investment profit giving venture in most areas. Of late, it has been recognized that it has the potential to develop as a prime agri-horticultural and forest-based industry. Honey production is a lucrative business and it generates employment.

Apiary honey is produced in bee hives and is harvested by extraction in honey extractors. Other types of beekeeping equipment like queen excluder, smoker, hive tool, pollen trap and honey processing plant are also used. Indian honey has a good export market. With the use of modern collection, storage, beekeeping equipment, honey processing plants and bottling technologies, the potential export market can be tapped. Bee hive colony and Honey extractor have to distribute in all blocks

Mechanization in cultivation of horticultural crops-

Mechanization encourages large scale production and improves the quality of farm produce. It ensures reduction of drudgery associated with a variety of farm operations and also encourages the utilization of input and thereby harnessing the potential of available resources. Provision of power operated machineries and tools including power operated saw and plant protection equipments, power machines with rotavator / equipment, power machines including accessories and equipment would strengthen the infrastructural facilities. The major interventions are,

1. Distibution of Power tiller/Tractor/ Minitractor have to be implemented in all blocks.
2. Land development, tillage and seed bed preparation equipments have to be implemented in all blocks.
3. Manual Sprayer-Knapsack/Foot operated Sprayer have to be implemented in all blocks.
4. Tractor Mounted / Operated Sprayer (Below 20HP) have to be implemented in all blocks

Micro Irrigation, Water harvesting and Management- to be covered in all blocks

With increasing demand for 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.

Special Interventions

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.

Pandal / Trellis cultivation, Propping / Support / Staking- to be covered in all blocks

Pandal vegetables being short duration crops fit very well in the cropping system by offering a viable option to the growers to get increased income per unit area. However, the cultivation of vegetables 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.

Banana Bunch Sleeve- to be covered in all blocks

'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 the last hand. Using of opaque polythene covers / sleeves gauge (during winter) and paper bags (to avoid chilling injury at frost conditions and sun scrotch). The bunch will be free from insect bites, fungi, bacteria attacks and physical injuries. The cover will also improve bunch appeal and maturity of the bunch will be advanced by 7 to 10 days.

Agro Ecosystem Analysis (AESA) based IPM- to be covered in all blocks

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 decade,s 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.

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 50, 000 traps of ferrolure of five traps per ha for 1.00 lakh hectares with subsides assistance of 50 per cent. The total cost for one hectare of Rs. 325/ferrolure which comes to Rs.3,250. Hence, an assistance of Rs. 1600/ha is proposed for five ferrolure per ha.

Promotion of Roof top Garden / Potager garden -to be covered in all districts

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.

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 the grower to get an increased return out of the 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.

Establishing Centre of Excellence for different crops- to be covered in all blocks

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

Computerization and Governance- to be covered in all blocks

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.

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.

Special Development Programme – Onion

Onion Storage Structures – to be covered in all blocks

India is one of the largest producers of onion in the world. It is one of the most important vegetable crops of our country and forms a part of the daily diet in almost all households. In Tamil Nadu, onion was grown in an area of about 35,000 ha with a production of 3,80,000 tons. Most of the farmers bring onion directly to the market after harvest as proper storage facilities are not available with them. The present storage capacities are quite inadequate and most of the available units are traditional and unscientific.

Tissue Culture Unit

Plant tissue culture is a collection of techniques used to maintain or grow plant cells, tissues or organs under sterile conditions on a nutrient culture medium of known composition. Plant tissue culture is widely used to produce clones of a plant in a method known as micro propagation.

Plant tissue culture relies on the fact that many plant cells have the ability to regenerate a whole plant (totipotency). Single cells, plant cells without cell walls (protoplasts), pieces of leaves, stems or roots can often be used to generate a new plant on culture media given the required nutrients and plant hormones. Although some growers and nurseries have their own labs for propagating plants by the technique of tissue culture, additional number of laboratories need to be created to provide custom propagation services and commercially viable plants to propagate in a laboratory.

Off-season Moringa Production – Pods and Leaves

Extremes of weather conditions that prevail in the Northern States during Kariff as well as Rabi seasons do not favour the cultivation of Moringa. Hence, truckloads of drumsticks are being transported from TN, AP and Karnataka to Northern States. Though the moringa pod is demanded throughout the year, the production is negligible during winter and rainy seasons owing to the inadequate thermal requirements of the crop. Various systems of cultivation are in vogue to produce moringa round the year production. Commercial cultivation of annual moringa PKM-1 can fit into any crop rotation. Though it is annual, it is amenable for rationing twice.

The major intervention are,

1. Offseason moring leaf production has to covered in all blocks.
2. Offseason moring pod production has to covered in all blocks.

Establishment of Mushroom unit- to be covered in all blocks

Mushrooms have been valued throughout the world as both food and medicine for thousands of years. They are a rich source of nutrition and form a major chunk of health foods. Earlier mushroom eating was restricted to specific regions and areas of the world, but due to globalization, interaction between different cultures, growing consumerism has ensured the accessibility of mushrooms in all areas. Mushrooms are increasingly gaining acceptance in different Cusines and in everyday consumption. They have created a space in a common man's kitchen. Also, the current trend of consumption conveys the opportunity that lies in the area of mushroom exports.

Rainfed Area Development Programme (RADP)- were covered in all blocks

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 variability. The major intervention are,

1. Integrated farming system - Horticulture Based farming have to implement in all blocks.
2. Green manuring have to implement in all blocks.
3. Moisture stress management - Minimum irrigation gurantee by PUSA hydrogel have to implement in all blocks.

Infrastructure Development

Mushroom production

Commercial production of edible Mushrooms converts the agricultural, industrial, forestry and household wastes into nutritious food (Mushroom). Indoor cultivation of oyster mushrooms utilizes the vertical space and is regarded as the highest protein per unit area and time – almost 100 times more than the conventional agriculture and animal husbandry. The proposed interventions are Mushroom production and Compost making and Cottage mushroom unit have to implemented in all Cumbum and Chinnamanur blocks

Supporting structures for vegetable production

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

a. Staking, trellis and propping- to be covered in all blocks

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, eggplants and peppers benefit from trellising, caging or staking. The trick to heavy harvests knows which vegetable support system works best for each plant. Trellising, which involves tying the 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- to be covered in all blocks

Pandal vegetables, being short duration crops, fit very well in the intensive cropping system. It offers a viable option for the growers to get increased income per unit area. It

includes the number of vegetables viz. bitter gourd, snake gourd, ribbed gourd, pandal avarai etc. These vegetables are grown on a commercial scale and are capable of giving high yields and high economic returns to the growers. It has tremendous market potential. The cultivation of vegetables 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 center also houses a training center 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 (SSEPER) etc. The Centre would not only provide employment, but also training to agriculturists in batches on raising vegetable 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 the production and multiplication of ornamental plants will also be established in the training centre for demonstration purpose.

Community Seed Bank

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 conserve the agro-biodiversity of their villages. These seed banks form the cornerstone of GREEN’s efforts for biodiversity conservation through community empowerment.

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 from these farms are distributed to the farmers directly and through various schemes of the department. The parks and garden serve as a 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. It is aimed to enhance the productivity levels of orchard crops by 30 per cent and increase the production level of planting materials by 25 per cent.

Establishment of Processing Units

Tamil Nadu produces nearly 110 lakh tonnes of vegetables and fruits, but it has only 136 cold storage locations with a capacity of 2.3 lakh tonnes which is shared amongst marine, milk and agro produce. The combined capacity is small as compared to the required capacity. Further, it has been reported that nearly 30 per cent of the horticultural crops produced are wasted due to rotting and in the post-harvest supply chain of storage and handling. Reducing this wastage calls for conversion of value added horticultural crops, fruits and flowers. Hence, it has been programmed to establish horticultural processing units and essential oil extraction unit.

Crop Insurance- to be covered in all blocks

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.

Horticultural mechanization

With increasing agricultural labour Shortage in India, a calculated shift to mechanization is imperative. Not only mechanization provides for optimal utilization of factor resources (viz., land, labour, water, capital and expensive farm inputs), but 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 in horticultural crops- to covered in all blocks

Micro-irrigation will generally use less than half the volume of water required by the more traditional ‘watering’ systems such as sprinkler irrigation. Lower pressures used mean less energy for pumping while precise placement of more exact water volumes enhances and improves water management. Micro Irrigation system scales down requirement of labour and takes care of application of fertilizers.

Conducting Field Days / Shows and Farmer's mela

Regular training programmes on relevant topics for Upgradation of knowledge and skill of extension functionaries of development department and farmers are essential. Apart from this, exhibition, horticulture show, Farmers' Mela, Field Days in farmer's field and Frontline Demonstrations to demonstrate technologies are to be regularly conducted.

Budget

The total cost of the project for 5 years is estimated as Rs. 40656.66 Lakh.

Implementing Agency

The projects will be implemented by the Department of Horticulture.

Table 4.19. Budget requirement for Horticultural sector

(₹ in Lakh)

Sl. No.	Interventions	Unit	Unit cost	Block Covered	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	Grapes	Ha	1.25	B3,B4,B8	70	87.50	75	93.75	110	137.50	115	143.75	140	175.00	510	637.50
2	TC Banana & TC Pineapple	Ha	1.25	All Blocks	264	330.00	381	476.25	478	597.50	480	600.00	559	698.75	2162	2702.50
3	Banana / Hill Banana sucker & Pine apple sucker	Ha	0.875	All Blocks	103	90.13	132	115.50	146	127.75	177	154.88	188	164.50	746	652.75
4	UHDP in Papaya, Mango, Guava, Pomegranate, Acidlime	Ha	1.25	B2,B4,B6, B7,B8	32	40.00	42	52.50	64	80.00	74	92.50	86	107.50	298	372.50
5	HDP in Mango, Guava, Litchi, Pomegranate	Ha	1	All Blocks	124	124.00	152	152.00	220	220.00	257	257.00	315	315.00	1068	1068.00
6	Area expansion fruits with traditional varieties	Ha	0.6	All Blocks	32	19.20	36	21.60	63	37.80	67	40.20	96	57.60	294	176.40
7	Normal Planting in lime / lemons	Ha	0.6	All Blocks	66	39.60	68	40.80	124	74.40	128	76.80	157	94.20	543	325.80
8	Normal Planting in Mango	Ha	0.6	All Blocks	95	57.00	170	102.00	195	117.00	220	132.00	295	177.00	975	585.00
9	Normal planting in Guava	Ha	0.6	All Blocks	107	64.20	140	84.00	173	103.80	206	123.60	264	158.40	890	534.00
10	Normal planting in Sapota	Ha	0.6	All Blocks	15	9.00	29	17.40	45	27.00	61	36.60	76	45.60	226	135.60
11	Normal planting in Amla	Ha	0.6	All Blocks	29	17.40	56	33.60	83	49.80	110	66.00	135	81.00	413	247.80
12	Normal planting in Papaya	Ha	0.6	All Blocks	34	20.40	53	31.80	87	52.20	101	60.60	130	78.00	405	243.00
13	Normal planting in Jack	Ha	0.6	All Blocks	6	3.60	6	3.60	11	6.60	13	7.80	13	7.80	49	29.40
14	Normal planting in Pomegranate	Ha	0.6	All Blocks	32	19.20	61	36.60	90	54.00	119	71.40	148	88.80	450	270.00

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
15	Banana for leaf production	Ha	0.6	All Blocks Except B3	41	24.60	72	43.20	98	58.80	134	80.40	145	87.00	490	294.00
16	Commercial production of choice fruits (Kiwi, Mangoosteen, Rambutan, Fig, Date palm, Durian, Carambola, Dragon fruit,Passion Fruit, Kiwi, Grapes, Strawberry, etc.,)	Ha	1.25	All Blocks	52	65.00	57	71.25	102	127.50	102	127.50	107	133.75	420	525.00
17	Commercial production of Traditional fruits (Woodapple, Manila Tamarind, Jamun, Ber, Karonda, Annona, Egg fruit, etc.,)	Ha	0.6	All Blocks	54	32.40	83	49.80	112	67.20	121	72.60	145	87.00	515	309.00
II	**Area expansion of vegetable crops**															
18	Brinjal	Ha	0.5	All Blocks	70	35.00	70	35.00	106	53.00	110	55.00	144	72.00	500	250.00
19	Bhendi	Ha	0.5	All Blocks	68	34.00	109	54.50	140	70.00	169	84.50	208	104.00	694	347.00
20	Green Chillies	Ha	0.5	All Blocks	32	16.00	51	25.50	70	35.00	74	37.00	88	44.00	315	157.50
21	Tomato	Ha	0.5	All Blocks	130	65.00	165	82.50	205	102.50	250	125.00	305	152.50	1055	527.50
22	Gourds including pumpkin and tinda	Ha	0.5	All Blocks	39	19.50	71	35.50	90	45.00	124	62.00	126	63.00	450	225.00
23	Peas & Beans	Ha	0.5	All Blocks	51	25.50	70	35.00	107	53.50	115	57.50	137	68.50	480	240.00
24	Greens	Ha	0.5	All Blocks	14	7.00	24	12.00	26	13.00	40	20.00	50	25.00	154	77.00
25	Small Onion	Ha	0.5	All Blocks	110	55.00	165	82.50	210	105.00	255	127.50	295	147.50	1035	517.50
26	Cauliflower	Ha	0.5	B2,B3,B4, B6,B7,B8	36	18.00	51	25.50	70	35.00	85	42.50	104	52.00	346	173.00
27	Annual Moringa	Ha	0.5	All Blocks	105	52.50	165	82.50	200	100.00	250	125.00	315	157.50	1035	517.50
28	Cabbage	Ha	0.5	All Blocks Except B1,B5	18	9.00	32	16.00	41	20.50	52	26.00	64	32.00	207	103.50

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
29	Cucumber/gherkin	Ha	0.5	All Blocks	40	20.00	60	30.00	82	41.00	98	49.00	120	60.00	400	200.00
30	Lab Lab	Ha	0.5	All Blocks	90	45.00	132	66.00	159	79.50	176	88.00	213	106.50	770	385.00
31	Radish	Ha	0.5	B2	2	1.00	2	1.00	2	1.00	4	2.00	4	2.00	14	7.00
32	Melons	Ha	0.5	B1,B2,B6, B7	7	3.50	7	3.50	14	7.00	14	7.00	14	7.00	56	28.00
33	Coccinea	Ha	0.5	All Blocks	34	17.00	41	20.50	72	36.00	78	39.00	90	45.00	315	157.50
34	Cluster bean	Ha	0.5	All Blocks	32	16.00	46	23.00	59	29.50	81	40.50	93	46.50	311	155.50
35	Beetroot	Ha	0.5	All Blocks	49	24.50	87	43.50	99	49.50	129	64.50	154	77.00	518	259.00
36	Tapioca	Ha	0.5	All Blocks	50	25.00	70	35.00	80	40.00	130	65.00	130	65.00	460	230.00
37	Yams and colacassia	Ha	0.5	All Blocks Except B1,B5	9	4.50	14	7.00	22	11.00	22	11.00	26	13.00	93	46.50
38	Sweet potato	Ha	0.5	B2,B3	4	2.00	4	2.00	8	4.00	8	4.00	8	4.00	32	16.00
39	Commercial production of choice vegetables (Bread fruit, Brussels sprout, Brocolli, Spring Onion, Knol Khol, Turnip, Winged Bean, Butter Bean, Chinese Cabbage, Lettuce, Leek, Porum, etc.,	Ha	0.5	All Blocks	34	17.00	56	28.00	68	34.00	85	42.50	97	48.50	340	170.00
40	Commercial production of location specific traditional vegetables (Athalakkai, Palu Pavakkai, Mullu kathiri, Poiyur kathiri, Kottapatti kathiri etc.,)	Ha	0.5	All Blocks	19	9.50	31	15.50	48	24.00	50	25.00	52	26.00	200	100.00

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
41	Cultivation of hybrid Vegetables under protected structures	1000 Sqm	1.4	B1,B5	2	2.80	2	2.80	2	2.80	2	2.80	2	2.80	10	14.00
III	**Area expansion of Medicinal and Aromatic plants**															
42	Aloe vera	Ha	0.5081	B1,B3,B4, B7,B8	10	5.08	14	7.11	18	9.15	20	10.16	22	11.18	84	42.68
43	Asparagus	Ha	0.7472	B3	5	3.74	5	3.74	5	3.74	5	3.74	5	3.74	25	18.68
44	Amla	Ha	0.7771	All Blocks Except B3	35	27.20	68	52.84	102	79.26	135	104.91	150	116.57	490	380.78
45	Solanum nigrum	Ha	0.2989	B2,B6	4	1.20	4	1.20	8	2.39	8	2.39	8	2.39	32	9.56
46	Mint	Ha	0.15	All Blocks	13	1.95	17	2.55	24	3.60	26	3.90	29	4.35	109	16.35
IV	**Area expansion of Spices crops**															
47	Seed and Rhizomatic spices (Coriander, Turmeric, Ginger, Dry Chilly, Cumin, Fennel, Fenu greek, Dil, Cardamom etc.,)	Ha	0.3	All Blocks	73	21.90	121	36.30	159	47.70	196	58.80	222	66.60	771	231.30
48	Perennial spices (Pepper, Curry leaf, All spice, Cinnamon, Clove, Tamarind, Nut meg etc.,)	Ha	0.5	All Blocks	39	19.50	76	38.00	97	48.50	121	60.50	152	76.00	485	242.50
49	Bulbous spices Garlic	Ha	0.5	B2,B6,B7	30	15.00	45	22.50	60	30.00	75	37.50	75	37.50	285	142.50
V	**Area expansion of Flower crops**															
50	Loose flowers - Jasminum sp, Crossandra, Marigold, Rose, Chrysanthemum, Nerium, Torenia	Ha	0.4	All Blocks	54	21.60	107	42.80	135	54.00	170	68.00	205	82.00	671	268.40

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
51	Bulbous flowers - Tube rose, Gladioli, Dahlia, Bird of paradise, Heliconia, Tulip	Ha	1.5	B1,B8,B3, B4,B5	7	10.50	17	25.50	21	31.50	24	36.00	28	42.00	97	145.50
VI	**Area expansion /Gap filling of Plantation crops**															
52	Coffee	Ha	0.5	B2,B4	35	17.50	70	35.00	80	40.00	100	50.00	125	62.50	410	205.00
53	Tea	Ha	0.5	B2,B4,B8	30	15.00	80	40.00	105	52.50	130	65.00	160	80.00	505	252.50
54	Cocoa	Ha	0.5	All Blocks	73	36.50	136	68.00	171	85.50	190	95.00	234	117.00	804	402.00
55	Cashew	Ha	0.5	All Blocks	52	26.00	95	47.50	108	54.00	140	70.00	150	75.00	545	272.50
56	Arecanut	Ha	0.5	B2	5	2.50	8	4.00	12	6.00	14	7.00	16	8.00	55	27.50
57	Betelvine	Ha	0.5	B6,B7	20	10.00	30	15.00	30	15.00	40	20.00	40	20.00	160	80.00
58	Coconut	Ha	0.5	All Blocks	135	67.50	215	107.50	310	155.00	350	175.00	425	212.50	1435	717.50
59	Bamboo and Other crops	Ha	0.6	All Blocks	7	4.20	8	4.80	9	5.40	10	6.00	12	7.20	46	27.60
VII	**Rejuvenation/INM-IPM/Mulching/Anti bird net**															
60	Mango/Cashew - Rejuvenation	Ha	0.4	All Blocks	88	35.20	106	42.40	159	63.60	192	76.80	225	90.00	770	308.00
61	INM/IPM for Horticultural crops	Ha	0.04	All Blocks	160	6.40	160	6.40	160	6.40	160	6.40	160	6.40	800	32.00
62	Mulching	Ha	0.32	All Blocks	150	48.00	180	57.60	205	65.60	220	70.40	235	75.20	990	316.80
63	Anti Bird net	1000 Sq.m	0.35	B3,B4,B8	30	10.50	30	10.50	60	21.00	60	21.00	60	21.00	240	84.00
VIII	**Pollination Support through Bee Keeping**															
64	Bee hive & Colony	No	0.04	All Blocks	700	28.00	700	28.00	700	28.00	800	32.00	800	32.00	3700	148.00
65	Honey Extractor	No	0.2	All Blocks	18	3.60	18	3.60	18	3.60	22	4.40	22	4.40	98	19.60
IX	**Organic Farming**															

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
66	Organic farming and PGS certification in 50 acre cluster	1 cluster	14.95	All Blocks	0	0.00	4	59.80	4	59.80	0	0.00	0	0.00	8	119.60
67	HDPE Vermibed	No	0.16	All Blocks	40	6.40	70	11.20	80	12.80	110	17.60	120	19.20	420	67.20
X	**Rainfed Area development**															
68	Integrated farming system - Horticulture Based farming	Ha	0.5	All Blocks	31	15.50	51	25.50	67	33.50	90	45.00	90	45.00	329	164.50
69	Green manuring	Ha	0.04	All Blocks	31	1.24	51	2.04	67	2.68	90	3.60	90	3.60	329	13.16
70	Moisture stress management - Minimum irrigation gurantee by PUSA hydrogel	Ha	0.1	All Blocks	40	4.00	80	8.00	115	11.50	160	16.00	210	21.00	605	60.50
B	**Infra structures and Assets creation**															
I	**Protected cultivation**															
1	Poly Green House	1000 Sq.m	9.35	All Blocks	22	205.70	25	233.75	38	355.30	42	392.70	50	467.50	177	1654.95
2	Shadenet	1000 Sq.m	7.1	All Blocks	2	14.20	6	42.60	12	85.20	10	71.00	4	28.40	34	241.40
II	**Mushroom production**															
3	Mushroom production and compost making	1 No.	20	B4	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	20.00
4	Cottage mushroom unit	1 No.	1	B3	0	0.00	1	1.00	1	1.00	1	1.00	0	0.00	3	3.00
III	**Vermicompost unit**															
5	Permanent Vermicompost Unit	600 cu.ft	1	All Blocks	8	8.00	10	10.00	13	13.00	15	15.00	15	15.00	61	61.00
IV	**Supporting structures for Horticulture crop production**															

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
6	Staking/ Trellies/ Propping	Ha	1	All Blocks	22	22.00	32	32.00	44	44.00	54	54.00	54	54.00	206	206.00
7	Permanent Pandhal structure	Ha	4	All Blocks	14	56.00	28	112.00	35	140.00	48	192.00	53	212.00	178	712.00
C	**Special interventions**															
1	Offseason Annual Moringa production - Pod	Ha	1.25	All Blocks	48	60.00	53	66.25	74	92.50	76	95.00	95	118.75	346	432.50
2	Offseason Annual Moringa production - Leaf	Ha	2	All Blocks	30	60.00	51	102.00	58	116.00	75	150.00	79	158.00	293	586.00
3	Farm deficiency correction	Ha	0.04	All Blocks	1600	64.00	1600	64.00	1600	64.00	1600	64.00	1600	64.00	8000	320.00
4	Promotion of Roof top Garden/ Potager garden Kit	No	0.005	All Blocks	560	2.80	560	2.80	560	2.80	560	2.80	560	2.80	2800	14.00
5	Promotion of Roof top Garden/ Potager garden Kit with shadenet	No	0.0735	All Blocks Except B3	50	3.68	100	7.35	100	7.35	50	3.68	50	3.68	350	25.73
6	Banana Bunch Sleeve	Ha	0.25	All Blocks	285	71.25	285	71.25	315	78.75	340	85.00	350	87.50	1575	393.75
7	AESA based IPM in fruits and vegetables Pheramone trap	Ha	0.04	All Blocks	800	32.00	800	32.00	800	32.00	800	32.00	800	32.00	4000	160.00
8	AESA Based IPM in fruits and vegetables Yellow sticky trap	Ha	0.04	All Blocks	800	32.00	800	32.00	800	32.00	800	32.00	800	32.00	4000	160.00
9	AESA Based IPM in fruits and vegetables Light trap	Ha	0.08	All Blocks	800	64.00	800	64.00	800	64.00	800	64.00	800	64.00	4000	320.00
D	**Post Harvest Management**															
1	Pack house (9m X 6m)	1 No	4	All Blocks	19	76.00	31	124.00	37	148.00	37	148.00	45	180.00	169	676.00
2	Low cost onion structure 25 mt	1 No	1.75	All Blocks	16	28.00	16	28.00	20	35.00	20	35.00	22	38.50	94	164.50
3	Drying yard	1 No	5	All Blocks	2	10.00	5	25.00	5	25.00	2	10.00	2	10.00	16	80.00

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
4	Integrated pack house (9m X 18 m)	1 No	50	All Blocks Except B1,B5	0	0.00	6	300.00	0	0.00	0	0.00	0	0.00	6	300.00
5	Cold storage unit 3000 mt	1 No	400	B3,B6,B8	0	0.00	3	1200.00	0	0.00	0	0.00	0	0.00	3	1200.00
6	Cold storage unit 5000 mt	1 No	500	B4	0	0.00	1	500.00	0	0.00	0	0.00	0	0.00	1	500.00
7	Banana Ripening chamber (300 mt)	1 No.	300	B3,B4,B8	1	300.00	2	600.00	0	0.00	0	0.00	0	0.00	3	900.00
E	**Development of Farms, Nurseries and Parks**															
1	Developmental activities in new/ exsisting state Horticultural farm, Keelapalur	No	25	B6	1	25.00	1	25.00	1	25.00	1	25.00	1	25.00	5	125.00
F	**Mechanization - Machineries, Equipments & Tools**															
1	Power tiller/Tractor/Minitractor	No.	1	All Blocks	43	43.00	55	55.00	70	70.00	76	76.00	86	86.00	330	330.00
2	Land development, tillage and seed bed preparation equipments	No..	0.3	All Blocks	65	19.50	115	34.50	150	45.00	185	55.50	220	66.00	735	220.50
3	Manual Sprayer-Knapsack/Foot operated Sprayer	No.	0.12	All Blocks	90	10.80	100	12.00	150	18.00	200	24.00	220	26.40	760	91.20
4	Tractor Mounted / Operated Sprayer (Below 20HP)	No.	0.2	All Blocks	39	7.80	49	9.80	66	13.20	76	15.20	77	15.40	307	61.40
5	Fruit Plucker, Tree pruners, Fruit Harvester, Fruit Graders, Track Trolley, Nursery Media Filling Machine, Power operated horticulture tools for	No.	2.5	All Blocks	67	167.50	87	217.50	169	422.50	189	472.50	213	532.50	725	1812.50

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	pruning, budding, grating, shearing etc.															
6	Mulch laying machine	No.	0.7	All Blocks	8	5.60	2	1.40	2	1.40	2	1.40	4	2.80	18	12.60
7	Hand operated sprayer with face mask	No.	0.025	All Blocks	190	4.75	340	8.50	530	13.25	680	17.00	700	17.50	2440	61.00
8	Nets for safe harvesting of fruits,Headlights for flower picking	No.	0.005	All Blocks	215	1.08	350	1.75	440	2.20	540	2.70	575	2.88	2120	10.60
9	Power operated sprayer	No.	0.05	All Blocks Except B1,B5	60	3.00	90	4.50	120	6.00	150	7.50	180	9.00	600	30.00
10	Plastic crates for vegetable & fruits handling	No of sets contai-ning 10 crates	0.075	All Blocks	145	10.88	170	12.75	240	18.00	290	21.75	340	25.50	1185	88.88
11	Oil engine	No.	0.15	B1,B5	4	0.60	4	0.60	8	1.20	8	1.20	12	1.80	36	5.40
12	5 layered Polythene spread sheets for drying horticulture produce	No.	0.16	B1,B5	10	1.60	10	1.60	10	1.60	10	1.60	10	1.60	50	8.00
13	Aluminium Ladders for Harvesting	No.	0.2	All Blocks Except B3,B4,B8	7	1.40	10	2.00	10	2.00	4	0.80	4	0.80	35	7.00
14	Equipments for manure management (Motorized Shredder for cutting biomass for making Vermicomposts and organic mulching)	No.	1.26	B1,B5	2	2.52	2	2.52	2	2.52	2	2.52	2	2.52	10	12.60
G	**Water / Irrigation Management**															
1	Micro Irrigation - Drip	Ha	1.12	All Blocks	1275	1428.00	1400	1568.00	1475	1652.00	1550	1736.00	1600	1792.00	7300	8176.00
2	Community Tank / On Farm Pond	No.	20	All Blocks	5	100.00	11	220.00	13	260.00	15	300.00	15	300.00	59	1180.00
H	**Capacity Building**															

Sl. No.	Interventions	Unit	Unit cost	Block Covered	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	140	2.80	140	2.80	160	3.20	160	3.20	160	3.20	760	15.20
2	Training to farmers outside the state. 30 farmers/Batch	No.	0.105	All Blocks	11	1.16	11	1.16	11	1.16	14	1.47	14	1.47	61	6.41
3	Exposure visit to farmers for 5 days. Rs.1000/farmer/day	No.	0.05	All Blocks	70	3.50	70	3.50	70	3.50	70	3.50	70	3.50	350	17.50
4	Training to farmers at HTC	No.	0.0025	All Blocks	155	0.39	230	0.58	230	0.58	230	0.58	230	0.58	1075	2.69
5	Exposure visit of farmers outside India	No.	4	All Blocks	8	32.00	8	32.00	8	32.00	8	32.00	8	32.00	40	160.00
6	Training to staff outside the state / Batch of 5 members	No.	0.04	All Blocks	32	1.28	32	1.28	32	1.28	32	1.28	32	1.28	160	6.40
7	Training to staff outside India	No.	6	All Blocks	6	36.00	2	12.00	0	0.00	0	0.00	0	0.00	8	48.00
8	District level seminar	No.	2	All Blocks	8	16.00	8	16.00	8	16.00	8	16.00	8	16.00	40	80.00
9	Computerization & governance	No.	1	B7	0	0.00	0	0.00	1	1.00	1	1.00	0	0.00	2	2.00
10	Publicity and Documentation	No.	0.5	All Blocks	9	4.50	11	5.50	9	4.50	12	6.00	12	6.00	53	26.50
I	**Crop Insurance and Risk Mitigating schemes**															
1	Crop Insurance	Ha	0.025	All Blocks	800	20.00	800	20.00	800	20.00	800	20.00	800	20.00	4000	100.00
	Grand Total					**5093.49**		**8941.56**		**7935.35**		**8805.89**		**9880.37**		**40656.66**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

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 the increase work out-put per unit time. Besides its paramount contribution to the multiple cropping and diversification of agriculture, mechanization also enables efficient utilization of inputs such as seeds, fertilizers and irrigation water. The agricultural mechanization is the only way out to face the challenge of farm workers shortage. Thus, the ultimate objective of Agricultural Mechanization Strategies in developing countries is to help 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 were covered in all blocks
- 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 were covered in all blocks.
- 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 (MB 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 frond chopper, Multi crop thresher, Paddy thresher, Brush cutter, Chaff cutter, Drum Seeder) and Plant protection equipments were covered in all blocks .
- Provision of suitable financial assistance to establish farm machinery banks for custom hiring for appropriate locations and crops were covered in all blocks
- Establishment of hi-tech machinery hubs for high value crops like sugarcane, cotton etc.

- Promotion of appropriate technologies and to set up farm machinery banks in identified villages
- Provision of financial assistance on per hectare basis to the beneficiaries hiring machinery/equipments from custom hiring centres
- Increases the tractor hire services in the farms of small and marginal farmers
- Strengthening of Minor irrigation for the rainfed and hard rock areas. It would establish through construction of open well, tube wells and Bore wells. Revitalization of wells by side boring and blasting in hard rock areas.
- Introduction of renewable energy in the villages which would replace other fuels and also attractive for water pumping applications in remote areas. Hence, solar operated photovoltaic water pumping system provides better sustainable alternative option to fulfil irrigation requirement of agriculture.
- Provision of components such as High -Tech Earth excavator, Poly Green House with Fogging facility, Vermi Compost unit with packing accessories, Farm pond / Fish pond, Farmers kit (Crow bar, Hand hoe, rose can, pruning siccature, coconut dehusker, trolley etc.,), Land levelling, Pipe laying, Stoning wall, Well deepening, Replacement of old Pump sets, Infrastructure like packing unit, godown, cattle shed and Threshing floor, Publicity and propaganda for farm mechanization in AED, Special Training for Coconut Growers, Special Training for Coconut Tree Climbing, J C B, Mini Drill, Compartmental Bund Formation, Farm Ponds, Community Bore wells, Deepening of Open Wells, Renovation of MI Tanks, Check Dam, Percolation Pond, Recharge Shaft, Summer Ploughing, PVP pipe laying, Replacement of Submersible Motors pump sets, Telescopic Pruner, Motorized Rubber Roller, Trays for Paddy Nursery Raising, Combine Harvester, Diesel Pump, Rotary Tiller, Smoke House, Mist Blower, Tea Harvester, Construction of LD & MI Repair Shed and Construction of Training Centre for farmers with furniture and accessories at the department of Agricultural engineering
- 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/ 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, Dryer solar, 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

- Promotion of Bio-mass gasifier units which hold huge potential technology for decentralized electricity generation in rural villages. Biomass is a CO_2 neutral fuel and, therefore, unlike fossil fuels such as diesel does not contribute to net CO_2 emissions, which makes biomass based power generation systems an attractive option in mitigating the adverse effects of climate change.
- Establishment of Agricultural Engineering Extension centres in order to collect information related to Government subsidy on agricultural / machineries / equipment / 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 and equipment and Repair, maintenance and proper setting of the different agricultural Machines / and equipment
- Promotion of training to AED engineers on post-harvest techniques and bio energy
- Rehabilitation of irrigation network to bring water directly to the root zone of the crop, improve application and conveyance efficiency, thereby reduce the wastage of water due to flood irrigation.
- Prevention of sea water intrusion through construction of subsurface dyke, Village Pond / Community Pond, Farm Pond, Recharge shaft and Weir/Bed Dam.
- Reclamation of problem soils which needs special management for satisfactory crop production. Physical limitations can be managed by irrigation, drainage, mulching, manuring, tillage, and soil conservation measures such as terracing, contouring, and cover crops whichever is appropriate.

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

Agriculture continues to be the most predominant sector of this district economy, as 70 percent of the population is engaged in Agriculture and allied activities for their livelihood. Agricultural Mechanization could provide the stability in agricultural production in a sustainable manner to meet the food requirement of growing population and also to meet the raw material needs of agro based industries, thereby providing employment opportunities to the rural population. The overall budget requirement for implementation of above interventions is ₹2496.62 Lakh .

Implementing agency

The projects will be implemented by the Department of Agricultural Engineering

Table.4.20. Budget requirement for Agricultural Engineering

(₹ in Lakh)

Sl. No	Interventions	Unit	Unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Demonstration of Agricultural Machinery	No's/Ha	0.04	All Blocks	12	0.48	12	0.48	12	0.48	12	0.48	12	0.48	60	2.40
2	Training of farmers	No's/Ha	0.04	All Blocks	160	6.40	160	6.40	160	6.40	160	6.40	160	6.40	800	32.00
3	Demonstration of Post Harvest Technologies	No's/Ha	0.04	B1,B5,B6, B7 , B3 & B4	4	0.16	4	0.16	4	0.16	4	0.16	4	0.16	20	0.80
4	Financial assistance for Post Harvest Equipment	No's/Ha	4	All Blocks	3	12.00	3	12.00	3	12.00	3	12.00	3	12.00	15	60.00
5	Tractor (8-15 PTO HP)	No's/Ha	3	All Blocks	1	3.00	1	3.00	1	3.00	1	3.00	1	3.00	5	15.00
6	Tractor (15-20 PTO HP)	No's/Ha	4	All Blocks	8	32.00	8	32.00	8	32.00	8	32.00	8	32.00	40	160.00
7	Tractor (Above 20-40 PTO HP)	No's/Ha	6	All Blocks	3	18.00	3	18.00	3	18.00	3	18.00	3	18.00	15	90.00
8	Tractor (40-70 PTO HP)	No's/Ha	8.5	All Blocks	11	93.50	11	93.50	11	93.50	11	93.50	11	93.50	55	467.50
9	Power Tiller (8 BHP & above)	No's/Ha	1.75	All Blocks	10	17.50	10	17.50	10	17.50	10	17.50	10	17.50	50	87.50
10	Self Propelled Rice Transplanter (Above 4-8 rows)	No's/Ha	16	B4	0	0.00	0	0.00	0	0.00	1	16.00	1	16.00	2	32.00
11	Post Hole Digger / Augur	No's/Ha	0.63	B4	1	0.63	1	0.63	1	0.63	1	0.63	1	0.63	5	3.15
12	Rotavator	No's/Ha	0.35	All Blocks	2	0.70	2	0.70	2	0.70	2	0.70	2	0.70	10	3.50
13	Seed drill	No's/Ha	0.4	B4	1	0.40	1	0.40	1	0.40	1	0.40	1	0.40	5	2.00
14	Power Weeder (engine operated below 2 BHP)	No's/Ha	0.25	All Blocks	20	5.00	20	5.00	20	5.00	20	5.00	20	5.00	100	25.00
15	Coconut Frond chopper	No's/Ha	0.8	B4	0	0.00	0	0.00	1	0.80	1	0.80	1	0.80	3	2.40
16	Balers	No's/Ha	2.9	B4	0	0.00	0	0.00	1	2.90	1	2.90	1	2.90	3	8.70
17	Brush Cutter	No's/Ha	0.25	All Blocks	50	12.50	50	12.50	50	12.50	50	12.50	50	12.50	250	62.50
18	f. Chaff Cutter (Operated by engine / electric motor below 3 hp and by power tiller and tractor of below 20 BHP tractor)	No's/Ha	0.25	All Blocks	3	0.75	3	0.75	3	0.75	3	0.75	3	0.75	15	3.75

Sl. No	Interventions	Unit	Unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
19	Cultivator	No's/Ha	0.25	All Blocks	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
20	Rotavator	No's/Ha	0.8	All Blocks	10	8.00	10	8.00	10	8.00	10	8.00	10	8.00	50	40.00
21	Power Weeder (engine operated above 2 BHP)	No's/Ha	0.7	All Blocks	7	4.90	7	4.90	7	4.90	7	4.90	7	4.90	35	24.50
22	Brush Cutter	No's/Ha	0.3	All Blocks	20	6.00	20	6.00	20	6.00	20	6.00	20	6.00	100	30.00
23	f.Chaff Cutter (Operated by engine / electric motor above 3-5 hp and by power tiller and tractor of below 35 BHP tractor)	No's/Ha	0.4	All Blocks	1	0.40	1	0.40	1	0.40	1	0.40	1	0.40	5	2.00
24	Disc Plow	No's/Ha	0.6	All Blocks	15	9.00	15	9.00	15	9.00	15	9.00	15	9.00	75	45.00
25	Cultivator	No's/Ha	0.3	All Blocks	20	6.00	20	6.00	20	6.00	20	6.00	20	6.00	100	30.00
26	Harrow	No's/Ha	1	All Blocks	4	4.00	4	4.00	4	4.00	4	4.00	4	4.00	20	20.00
27	Leveler Blade	No's/Ha	0.3	All Blocks	2	0.60	2	0.60	2	0.60	2	0.60	2	0.60	10	3.00
28	Ridger	No's/Ha	0.4	All Blocks	2	0.80	2	0.80	2	0.80	2	0.80	2	0.80	10	4.00
29	Rotavator	No's/Ha	0.95	All Blocks	30	28.50	30	28.50	30	28.50	30	28.50	30	28.50	150	142.50
30	Zero till seed cum fertilizer drill	No's/Ha	0.7	All Blocks	3	2.10	3	2.10	3	2.10	3	2.10	3	2.10	15	10.50
31	Automatic Rice NurserySowing Machine	No's/Ha	2.5	All Blocks	0	0.00	0	0.00	0	0.00	1	2.50	1	2.50	2	5.00
32	Thresher/Multi Crop threshers	No's/Ha	4	All Blocks	1	4.00	1	4.00	1	4.00	2	8.00	2	8.00	7	28.00
33	Tree climber	No's/Ha	0.07	All Blocks	11	0.77	11	0.77	11	0.77	11	0.77	11	0.77	55	3.85
34	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity 8-12 lts)	No's/Ha	0.06	All Blocks	2	0.12	2	0.12	2	0.12	2	0.12	2	0.12	10	0.60
35	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 12-16 lts)	No's/Ha	0.08	All Blocks	12	0.96	12	0.96	12	0.96	12	0.96	12	0.96	60	4.80
36	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 16 lts)	No's/Ha	0.1	All Blocks	12	1.20	12	1.20	12	1.20	12	1.20	12	1.20	60	6.00

Sl. No	Interventions	Unit	Unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
37	Establishment of Farm Machinery Banks for Custom Hiring	No's/Ha	28	All Blocks	4	112.00	4	112.00	4	112.00	4	112.00	4	112.00	20	560.00
38	Promotion of Farm Mechanization in Selected Villages	No's/Ha	11.5	B1,B5,B6,B7	0	0.00	0	0.00	0	0.00	2	23.00	2	23.00	4	46.00
39	Financial assistance for promotion of Mechanized Farming operations	No's/Ha	0.04	All Blocks	110	4.40	110	4.40	120	4.80	120	4.80	140	5.60	600	24.00
40	Purchase of Tractors for AED	No's/Ha	8	B1,B5,B6,B7 , B3 & B4	5	40.00	1	8.00	0	0.00	0	0.00	1	8.00	7	56.00
41	Purchase of Tractor drawn implemnets for AED	No's/Ha	0.5	All Blocks	0	0.00	5	2.50	5	2.50	5	2.50	5	2.50	20	10.00
42	Purchase of Paddy Transplanter for AED	No's/Ha	18	B4	0	0.00	0	0.00	1	18.00	0	0.00	0	0.00	1	18.00
43	Purchase of Paddy combine Harvester for AED	No's/Ha	17	B1,B5	1	17.00	0	0.00	1	17.00	0	0.00	0	0.00	2	34.00
44	Purchase of Balers for AED	No's/Ha	4.5	B7	0	0.00	0	0.00	1	4.50	0	0.00	0	0.00	1	4.50
45	Purchase of Multi Crop Thresher for AED	No's/Ha	3.5	B3 & B4	0	0.00	0	0.00	0	0.00	1	3.50	1	3.50	2	7.00
46	5 hp	No's/Ha	3.75	B4	0	0.00	1	3.75	0	0.00	0	0.00	0	0.00	1	3.75
47	Computer & its accessories	No's/Ha	0.8	B6,B7 & B3	1	0.80	1	0.80	1	0.80	0	0.00	0	0.00	3	2.40
48	Tablet (Tab)	No's/Ha	0.25	B6,B7 & B3	1	0.25	1	0.25	1	0.25	0	0.00	0	0.00	3	0.75
49	Xerox machine	No's/Ha	1.5	B6,B7 & B3	1	1.50	1	1.50	1	1.50	0	0.00	0	0.00	3	4.50
50	Chain saw/ Wheel barrow/ Mango grader/ planter and other suitable self propelled machineries and equipments for horticulture Crops	No's/Ha	1	All Blocks	3	3.00	3	3.00	3	3.00	3	3.00	3	3.00	15	15.00
51	Manual Horticultural Equipments	No's/Ha			0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
52	Aluminium Ladder/ Ladder	No's/Ha	0.2	All Blocks	5	1.00	4	0.80	4	0.80	4	0.80	4	0.80	21	4.20
53	Aluminium pole	No's/Ha	0.03	All Blocks	5	0.15	5	0.15	5	0.15	5	0.15	5	0.15	25	0.75
54	Plucker	No's/Ha	0.02	All Blocks	5	0.10	5	0.10	5	0.10	5	0.10	5	0.10	25	0.50
55	Mini Rice Mill	No's/Ha	1.5	B1,B5,B6,B7 & B3	0	0.00	1	1.50	1	1.50	1	1.50	1	1.50	4	6.00
56	Millet Mill	No's/Ha	1.5	B1,B5,B6,B7 & B3	0	0.00	1	1.50	1	1.50	1	1.50	1	1.50	4	6.00

Sl. No	Interventions	Unit	Unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
57	Oil mill with filter press (for all type of Horticulture / Food grain / Oil seeds crop)	No's/Ha	1.2	B1,B5,B6,B7 & B3	0	0.00	1	1.20	1	1.20	1	1.20	1	1.20	4	4.80
58	Extractor (for all type of Horticulture / Food grain / Oil seeds crop)	No's/Ha	1	B1,B5,B6,B7 & B3	0	0.00	1	1.00	1	1.00	1	1.00	1	1.00	4	4.00
59	Packing Machines (for all types of Horticulture / Food grain / Oil seeds crop)	No's/Ha	3	B1,B5,B6,B7 & B3	2	6.00	2	6.00	2	6.00	2	6.00	2	6.00	10	30.00
60	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)	No's/Ha	1.2	B1,B5,B6,B7 & B3	2	2.40	2	2.40	2	2.40	2	2.40	2	2.40	10	12.00
61	All types of Boiler/ Steamer/ Dryer solar (for all type of Horticulture / Food grain / Oil seeds crop)	No's/Ha	2	B1,B5,B6,B7 & B3	2	4.00	2	4.00	2	4.00	2	4.00	2	4.00	10	20.00
62	All types of Washing Machines (for all type of Horticulture / Food grain / Oil seed crop)	No's/Ha	1.5	B1	1	1.50	0	0.00	0	0.00	0	0.00	0	0.00	1	1.50
63	Construction of Agricultural Engineering Extension centres (AEECs)	No's/Ha	75	B1,B5	2	150.00	0	0.00	0	0.00	0	0.00	0	0.00	2	150.00
64	Training of AED Engineers on " Agricultural Processing" and " Bio- Energy"	No's/Ha	0.04	All Blocks	3	0.12	2	0.08	2	0.08	3	0.12	3	0.12	13	0.52
	Total					**627.09**		**437.80**		**469.65**		**476.64**		**485.44**		**2496.62**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

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 in Agribusiness development is the general failure in coordinating the decisions of the private stakeholders *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 produces 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 natural markets in urban areas. Moreover, the surplus often cannot be stored for sale in the off-season because of the inadequate local storage facility; the farmers are often forced to market their produce at low price. Thus, the cultivars do not get a good price for their produce because of the glut, and some of it is spoiled resulting in complete losses. 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 growing pulses. 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, encourage processing from the present level of 10 per cent of the total.

So, to accelerate the growth substantially, a new way of linking of Agricultural production 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. Agribusiness 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.

Components

- Promotion of commodity groups and market information to be covered in Theni block
- Construction of Storage godown for commodity groups to be covered in Theni, Cumbum, Chinnamanur and Bodinaickanur blocks
- Construction of drying yards to be covered in Cumbum, Chinnamanur blocks
- Upgradation of rural shandies and uzhavar shandies- to be covered in Bodinaickanur block
- Strengthening of Regulated Markets- to be covered in Theni, Cumbum, and Chinnamanur blocks
- Formation of Farmer Producer Organizations (FPO)- to be in Theni, Periyakulam and Chinnamanur blocks
- Exposure visit (within state – to be covered in all blocks & outside state was to be covered in Theni block) for commodity group farmers to acquire value addition technologies.

Budget

The district plan proposes an outlay of ₹.4550.88 Lakh over a period of five years for Theni district district .

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 agricultural 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 4.21. Budget for strengthening of Agricultural Marketing and Agri-Business in Theni District

(₹ in Lakh)

Sl.No	Intervention	Unit	Unit Cost	Block covered	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	e-learning Centre	1	75	B1	1	75.00	0	0.00	0	0.00	0	0.00	0	0.00	1	75.00
2	Development of post harvest technology packages on electronic form to be shared through IT and other media	10	0.2	B1	2	0.40	2	0.40	2	0.40	2	0.40	2	0.40	10	2.00
3	Documentation of Traditional and Improved Technologies in Food processing and Value addition	5	0.25	B1	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
4	Equipping field level extension functioneries with realtime onfarm reporting and documentation tools with internet connectivity	9	0.25	B1	9	2.25	0	0.00	0	0.00	0	0.00	0	0.00	9	2.25
5	Establishment of blocklevel market information & advisory centres for farmers and entrepreuners at newly created Integrated	1	1.5	All Block except B5	4	6.00	0	0.00	3	4.50	0	0.00	0	0.00	7	10.50
6	Provision of Agmark Lab equipments	1	5	B1	1	5.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00

Sl.No	Intervention	Unit	Unit Cost	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
7	Publicity-Press Release, Printing of Pamplets, Booklets, Banners, Flex.	Nos	0	B1	14	2.80	5	1.00	5	1.00	5	1.00	5	1.00	34	6.80
8	Setting up of permanenet Agmark Exhibition with models & displays	1	2	B1	1	2.00	0	0.00	0	0.00	0	0.00	0	0.00	1	2.00
9	Strengthening of Market Information Centre with Computers & Accessories, digital camera (at district level)	1	3	B1	1	3.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.00
	Strengthening of Uzhavar Sandhai and Regulated Market															
10	Computers and other Accessories	1	2	B1	0	0.00	0	0.00	0	0.00	1	2.00	0	0.00	1	2.00
11	Drying Yard	1	6	B2, B6	24	144.00	21	126.00	22	132.00	22	132.00	21	126.00	110	660.00
12	Storage godown	Nos	0.04, 2000MT-160, 1000 MT-35	B1, B2, B6, B7	909	476.00	1	35.00	8	280.00	1	35.00	8	280.00	927	1106.00
13	Ticker Board and External Electrification	1	2	B1, B8	2	4.00	0	0.00	0	0.00	0	0.00	0	0.00	2	4.00
14	Proposed Paver Block 3000 Sqm	1	15	B1, B3, B8	3	45.00	0	0.00	0	0.00	0	0.00	0	0.00	3	45.00
15	Provision of Automatic seed vending machine in Uzhavar Sandhai	1	2.75	B1	1	2.75	0	0.00	0	0.00	0	0.00	0	0.00	1	2.75

Sl.No	Intervention	Unit	Unit Cost	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
16	Provision of modern roofing (galvanized zinc sheets) in Uzhavar Sandhai for shops and office	1	5	B1, B3, B6	3	15.00	0	0.00	0	0.00	0	0.00	0	0.00	3	15.00
17	Administrative Office Room (Vevichle shed ,waiting hall,washing Room,Borewell with Motor, water Tank)	1	3	B1, B2, B6, B7	4	12.00	0	0.00	0	0.00	0	0.00	0	0.00	4	12.00
18	Strengthening of RM	1	428.3	B1, B2, B6	3	1284.90	0	0.00	0	0.00	0	0.00	0	0.00	3	1284.90
19	Upgradation of Uzhavar Shadhais	1	5	B7	4	20.00	0	0.00	0	0.00	0	0.00	0	0.00	4	20.00
20	Vaccum cleaner with Blower(High speed)	1	0.25	B1, B2, B6, B7	9	2.25	0	0.00	0	0.00	0	0.00	0	0.00	9	2.25
	Formation of FPO / Strengthening of Existing Commodity Groups															
21	FPO	Nos	42	B1, B3, B6	5	210.00	5	210.00	0	0.00	0	0.00	0	0.00	10	420.00
22	Formation of Commodity Group, FPCs and Business Support to FPCs	80	0.05	All Blocks	106	5.30	106	5.30	106	5.30	106	5.30	106	5.30	530	26.50
23	Establishment of Inputs shop to the existing FPOs	3	10	B1, B3, B8	3	30.00	0	0.00	2	20.00	0	0.00	2	20.00	7	70.00
24	Custom Hiring Centre to the existing FPOs/Commodity Groups with one tractor,one power tiller & one rotavator	2	10	B1	10	100.00	0	0.00	0	0.00	1	10.00	0	0.00	11	110.00
25	Environmentally controlled Mobile vending carts to the existing	2	0.4	All Blocks	8	3.20	2	0.80	3	1.20	1	0.40	6	2.40	20	8.00

Sl.No	Intervention	Unit	Unit Cost	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	FPOs/Commodity Groups															
26	Provision of pre-fabricated "Sales Kiosks" to the existing FPOs/Commodity Groups	1	2	All Blocks except B4	7	14.00	0	0.00	0	0.00	0	0.00	3	6.00	10	20.00
27	Provision of "Improved Seed Onion storage sheds" to the existing FPOs/Commodity Groups	1	1	All Blocks except B2	5	5.00	0	0.00	2	2.00	0	0.00	3	3.00	10	10.00
	Provision of Market Access and Market Activities															
28	Hammer Mill	1	0.04	B1, B2, B6, B7	6	0.24	0	0.00	0	0.00	0	0.00	0	0.00	6	0.24
29	Hand sprayer - to spray pesticide to control storage pest in Godowns	1	0.04	B1, B2, B6, B7	6	0.24	0	0.00	0	0.00	0	0.00	0	0.00	6	0.24
30	Moisturemeter	150	0.04	All Blocks	130	5.20	130	5.20	130	5.20	130	5.20	130	5.20	650	26.00
31	Plastic crates	Nos	0	All Blocks	2500	14.80	2500	14.80	2500	14.80	2500	14.80	2500	14.80	12500	74.00
32	Provision of Gunnies	26	2	All Blocks	35	71.05	0	0.00	0	0.00	0	0.00	0	0.00	35	71.05
33	Special Area Development Programme	2	0.05	B1, B2, B6, B7	12	0.60	0	0.00	0	0.00	0	0.00	0	0.00	12	0.60
34	Steel Ladder	1 Nos	0.05	B1, B2, B6, B7	12	0.60	0	0.00	0	0.00	0	0.00	0	0.00	12	0.60
35	Tarpaulin	1 Nos	0.08	All Blocks	415	33.20	400	32.00	400	32.00	400	32.00	400	32.00	2015	161.20
36	Trolleys	1 Nos	0.25	All Blocks	45	11.25	0	0.00	0	0.00	0	0.00	0	0.00	45	11.25
37	Vending Cart															
	Post Harvest Infrastructure and Machinaries															

Sl.No	Intervention	Unit	Unit Cost	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
38	Mango Harvest Net	75	0.01	B3, B7	35	0.35	35	0.35	35	0.35	35	0.35	35	0.35	175	1.75
39	Provision of "Improved Seed Onion storage sheds" to the existing FPOs/Commodity Groups	1	1	All Blocks except B2	5	5.00	0	0.00	2	2.00	0	0.00	3	3.00	10	10.00
40	Organic farming demo plots in Supply Chain Management farmers' field to encourage eco-friendly production technologies and	150	0.04	All Blocks	130	5.20	130	5.20	130	5.20	130	5.20	130	5.20	650	26.00
41	Tomato processing vending machine	Nos	2.75	B1	1	2.75	0	0.00	0	0.00	0	0.00	0	0.00	1	2.75
42	country chekku (Power)	Nos	2.5	B1, B6, B7	2	5.00	0	0.00	0	0.00	0	0.00	2	5.00	4	10.00
	Capacity building Programme															
43	Exposure Visits - within state	Nos	0.4	All Blocks	8	3.20	8	3.20	8	3.20	8	3.20	8	3.20	40	16.00
44	Exposure Visits - outside state - 3 days	Nos	0.8	B1	1	0.80	1	0.80	1	0.80	1	0.80	1	0.80	5	4.00
45	Training on Market led Extension, Agmark grading&Food safety, post harvest technology, Supply Chain Management, Grading-sorting-packing, Market linkages & Exports, Food processing and value addition at district level	Nos	1.75	All Blocks	20	35.00	20	35.00	20	35.00	20	35.00	20	35.00	100	175.00
46	Conducting festivals/melas, Field days, awareness	Nos	1	All Blocks	6.8	6.80	6.8	6.80	6.8	6.80	6.8	6.80	6.8	6.80	34	34.00

Sl.No	Intervention	Unit	Unit Cost	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	campaign, seminar, Farmers-Scientists interaction, Village meeting															
	Total					**2671.38**		**482.10**		**552.00**		**289.70**		**555.70**		**4550.88**

B1-Theni, B2-Cumbum, B3-Periyakulam, B4-Kadamalaikundu, B5-Uthamapalyam, B6-Chinnamanur, B7-Bodi, B8-Andipatti

4.5. Seed and Organic Certification

Seed certification is a legally sanctioned system for quality control of seed multiplication and production. The immediate objective of seed certification is to supply high quality seed to farmers and other growers, which is true to identity, high in purity and germination capacity and free from certain pests and diseases. Seed quality is most important in crop production, as high quality seed is essential for good crop yields and better returns, and minimize the likelihood of crop failure. Moreover a, growing consciousness of health hazards due to possible contamination of farm products from the use of chemicals have immensely contributed to the revival of organic agriculture. Organic certification is a certification body for organic production, which was established as a government department on 17 of May 2007. Thus the major focus of the department will be the creation of new facilities for better certification by strengthening the lab facilities, and infrastructure, create more awareness on quality seed and organic agriculture through capacity building, expanding communication and networking facilities in order to enhance the activities on seed and organic certification.

Project components

1. Strengthening/creation of infrastructure in laboratories and communication and networking facilities – to be covered in all blocks
2. Strengthening of communication and networking facilities – to be covered in all blocks

Expected outcome

Enhancement of laboratory facilities, infrastructure, capacity building, communication and networking would promote the quality of seed and organic certification.

Budget

The budget requirement for fulfilling those interventions is ₹ 23.36 Lakh.

Implementing agency

The projects will be implemented by the Directorate of Seed and Organic certification.

Table 4.22. Budget requirement for Seed certification

(₹ in Lakh)

Sl. No	Interventions	Unit	Unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**Strengthening of laboratory facilities**															
1	Blower, Conductivity meter, Dehuller/ Scarifier, Dehumidifier Air Conditioner, Digital moisture meter, Dunnage, Fabricated display Racks ,Geaser, Generator, Heater,Hot air oven, Humidifier, Incubator, Induction stove, Microscope, Moisture meter, Packing machine, R. O system, Sample racks,Seed Grinder, Sieve, Thermohydro meter, Dunnage, Trolley for carriages, Working chair, Working table, Miscellaneous,	No's	13.36	All Blocks	0.00	0.00	1.00	13.36	0.00	0.00	0.00	0.00	0.00	0.00	1.00	13.36
II	**Strengthening of communication and networking facilities**															
	Computer accessories	No's	0.50	All Blocks	20.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	10.00
						10.00		**13.36**		**0.00**		**0.00**		**0.00**		**23.36**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.6. Animal Husbandry sector

Livestock has 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 is now more valued as a 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 depends on Animal Husbandry for their livelihood. Moreover, livestock sector provides supplementary employment and sustainable source of income for 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. To increase in production of livestock products, livestock rearing is considered as an occupation with high export potential opportunities. 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:

1. Increasing the availability of fodder through field level interventions – to be covered in all blocks
2. Increasing the availability of fodder by strengthening farm infrastructure- to be covered in all blocks
3. Livestock breeding management- to be covered in all blocks
4. Livestock health- to be covered in all blocks
5. Improving the livestock productivity- to be covered in all blocks
6. Improving the service delivery at veterinary institutions- to be covered in all blocks
7. Enhancing livestock management- to be covered in all blocks

8. Capacity building to be covered in all blocks

Increasing the availability of fodder through field level interventions

Livestock rearing is one of the major occupations in India and is making a 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 pasturage. 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 the requirement. The data also reveal 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. fulfils 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 a corresponding increase in the type of fodder needed to meet the requirements of these new situations.

1. Establishment of vermicomposting unit
2. Distribution of Azolla trays
3. Fodder plot development
4. Meichal/grazing land development
5. Distribution of seedlings, sprinklers, grass cutter and raingun to the farmers
6. Development of seed production plots

Increasing the availability of fodder by strengthening farm infrastructure

The livestock sector is handicapped due to inadequate infrastructure facilities as a result of low productivity. Infrastructure development of animal husbandry is felt essential to provide the desired veterinary services in the interior pockets of the districts so as to enable the livestock owners living in the remote areas can avail the opportunities to consider Animal Husbandry activities as livelihood option and maximize profit through livestock sector. Adequately providing proper infrastructure and equipment to the veterinary health care institution is necessary for the timely diagnosis and treatment of animal diseases. Further, emphasis has to be laid on optimum utilization of waste land to grow fodder.

Improved infrastructure facilities will provide improved veterinary services contributing to a reduction in the incidences of animal diseases, thereby increasing the overall productivity of animals. The Rural Veterinary Dispensaries are either functioning from rented premises or in dilapidated buildings. Further, functioning of Veterinary Institutions in the rental buildings does not satisfy the requirement of a typical Veterinary Institution and with a restricted scope for further expansion, these are not ideal infrastructure. This necessitates strengthening the infrastructure of the veterinary institutions to offer better delivery of services and to reshape it into knowledge resource centres where best practices can be disseminated to the farmers. The following infrastructure facilities will strengthen the fodder availability such as

1. Establishment of farm production cover
2. Construction of silo pit and overhead tanks
3. Establishment of feed mixing units
4. Installation of rain gun and sprinklers
5. Procurement of agri inputs

Livestock breeding management

Over the past few decades, imported exotic cow varieties have boosted 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 kg. 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 AI is the backbone 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

1. CIDR
2. Establishment and distribution of sex-sorted semen facility
3. Establishment of IVF lab
4. Establishment of LN2 and embryo transfer lab
5. Oestrous synchronization

Livestock health

A large number of infectious and metabolic diseases prevalent in Indian livestock have serious implication for animal productivity, export potential and safety/ quality of livestock products and many of these diseases have zoonotic implications. The current efforts of prevention and control of livestock diseases need to be strengthened. There is a shortage of veterinary and Para-veterinary manpower and facilities including mechanisms for diagnosis, treatment, tracking and prevention of the diseases. Adequate infrastructure for ensuring bio-security, proper quarantine systems and services to prevent the ingress of diseases across the states and national borders is not available. By providing the following facilities will prevent the above diseases such as

1. Upgradation of vaccine production facilities for bacteria and virus
2. Procurement of vaccines, medicine, diagnostic kit
3. Animal quarantine facility in govt. farm
4. Animal testing facility

Improving the livestock productivity

Although India is a major producer of livestock products, the average productivity of livestock is lower than its 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. The intervention have been propose are

1. Distribution of sheep, goat, buffalo, piggery, poultry units
2. Establishment of modern poultry, rabbit , piggery, sheep, goat and bull shed
3. Popularizing quail rearing
4. Integrated farming

Improving the service delivery at veterinary institutions

Veterinary hospitals, dispensaries, Aid Centres, 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 below mentioned intervention has been proposed. The intervention have been propose are

1. Deep freezer facility for storage of vaccines and medicines
2. Establishment of infrastructure facilities, disease diagnostic lab, mobile veterinary units, surgical theatres and ambulance facilities.

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 intervention have been propose are

1. Animal identification and traceability
2. Conservation of indigenous breeds
3. Improvement of livestock shandy
4. Establishment of slaughter house

Capacity building

Educating the farmers about the advanced crop production technologies as well as the techniques will enrich the knowledge of farmers through the conduct of trainings and demonstrations to the farmers, youths and young entrepreneurs. 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, indigenous and local communities, and their organizations and other stakeholders, 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.

1. Establishment of farmers training Centre
2. Conducting demonstrations camps and campaigns
3. Creating awareness of livestock management to the farmers through training programmes.

Budget allocation

The major themes proposed in the plan for animal husbandry sector with a total budget out lay of ₹ 3833.90 Lakh**.**

Project implementing agency

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

Table 4.23. Budget requirement for Animal Husbandry sector

(₹ in Lakh)

Sl. No	Interventions	Unit	Unit cost	Block Covered	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 Vermicomposting unit (single bed)	Nos	0.05	All Blocks	216	10.80	216	10.80	216	10.80	216	10.80	216	10.80	1080	54.00
2	Fodder production to the farmers by Hydrophonic methods	Nos	0.1	All Blocks	144	14.40	144	14.40	144	14.40	144	14.40	144	14.40	720	72.00
3	Distrbution of Azolla trays	Nos	0.03	All Blocks	360	10.80	360	10.80	360	10.80	360	10.80	360	10.80	1800	54.00
4	Distribution of Silage bags for conservation of fodder crops	Nos	0.005	All Blocks	216	1.08	216	1.08	216	1.08	216	1.08	216	1.08	1080	5.40
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	Meikal land development (incl infrastructure development)	acre	6	B8	3	18.00	0	0.00	0	0.00	0	0.00	0	0.00	3	18.00
7	Developemnt of Seed Production plots	acre	0.25	All Blocks	8	2.00	8	2.00	8	2.00	8	2.00	8	2.00	40	10.00
	Livestock Breeding Management															
8	CIDR (Controlled Internal Drug Release) for increasing Fertility in Cattle	Nos	0.01	All Blocks	1440	14.40	1440	14.40	1440	14.40	1440	14.40	1440	14.40	7200	72.00
9	Establishment of Infrastructure facilities for sex-sorting facility	Nos	250	B1, B2, B6, B8	0	0.00	1	250.00	0	0.00	2	500.00	1	250.00	4	1000.00
	Improving the Livestock Productivity															
10	Distibution of Sheep/Goat units -semi intensive system	Nos	1.25	All Blocks	1	1.25	0	0.00	0	0.00	0	0.00	1	1.25	2	2.50

Sl. No	Interventions	Unit	Unit cost	Block Covered	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															
11	Distribution of Buffalo units(5 Buffaloes)	Nos	4.5	All Blocks	8	36.00	0	0.00	0	0.00	0	0.00	0	0.00	8	36.00
12	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
13	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
14	Establishment of disposal pits for poultry unit	Nos	1	All Blocks	8	8.00	8	8.00	8	8.00	8	8.00	8	8.00	40	40.00
15	Distribution of Piggery units (fattening-5 Nos)	Nos	0.6	All Blocks	144	86.40	144	86.40	144	86.40	144	86.40	144	86.40	720	432.00
16	Improvement of infrastructure facilities at PEC, Vaigai dam	Nos	35	B3	0	0.00	0	0.00	0	0.00	0	0.00	1	35.00	1	35.00
	Improving the Service Delivery at Veterinary Institutions															
17	Deep freezer facility for Storage of vaccines and Medicines	Nos	10	All Blocks	0	0.00	0	0.00	8	80.00	0	0.00	0	0.00	8	80.00
18	Establishment of Infrastructure facilities for Veterinary Institutions	Nos	30	All Blocks	2	60.00	2	60.00	1	30.00	2	60.00	1	30.00	8	240.00
19	Establishment of Mobile Disease Diagnostic Labs	Nos	20	All Blocks	2	40.00	2	40.00	1	20.00	2	40.00	1	20.00	8	160.00
20	Establishment of Mobile Veterinary Units	Nos	10	All Blocks	2	20.00	2	20.00	1	10.00	2	20.00	1	10.00	8	80.00
21	Establishment of surgical theatres at veterinary institution	Nos	30	All Blocks	2	60.00	2	60.00	2	60.00	1	30.00	1	30.00	8	240.00
22	Providing solar lighting panels at veterinary institution	Nos	1	All Blocks	8	8.00	8	8.00	8	8.00	8	8.00	8	8.00	40	40.00
23	Package of Modern Veterinary Diagnostic Aids to Veterinary Institutions	Nos	30	All Blocks	2	60.00	2	60.00	2	60.00	1	30.00	1	30.00	8	240.00

Sl. No	Interventions	Unit	Unit cost	Block Covered	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															
	such as Computerised X rays, Ultrasound, Diathermy etc.															
24	Establishment of Ambulance facility for animals	Nos	80	B7	1	80.00	1	80.00	0	0.00	0	0.00	0	0.00	2	160.00
	Livestock Management															
25	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
26	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															
27	Establishment of Farmers training Centre	Nos	200	B7	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00
28	Conducting Demonstrations, Camps and Campaigns	Nos	0.1	All Blocks	216	21.60	216	21.60	216	21.60	216	21.60	216	21.60	1080	108.00
29	Creating awarness of livestock management to the farmers through Training Programmes	Nos	0.1	All Blocks	216	21.60	216	21.60	216	21.60	216	21.60	216	21.60	1080	108.00
	Grand Total					**669.33**		**1037.08**		**527.08**		**937.08**		**663.33**		**3833.90**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.7 Dairy Development sector

In India, dairy development is vitally needed to improve the socio-ecnomic condition of the rural poor and our natural economy, because it has potential resources of livestock. India has one of the largest stocks of cattle and buffaloes: more than 50 percent of the world's buffaloes and 20 percent 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 the 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. To fulfil the shortage in dairy sector, the following interventions have been suggested.

Strengthening of milk storages and processing units

Clean milk production is a concept being used everywhere, where quality of milk has become prime importance. It has to be maintained throughout the milk supply chain right from the dairy farm environment to cooling & storage to its packaging. The machinery and equipment required depends on the level of mechanization desired and the scale of operation. However, some machinery and equipment are essentially required such as storage tanks, washer, coolers, pumps and processing equipment’s. Except for this some electrical installation also required to provide proper storage facilities.

The major interventions are,

1. Milk storage tanks of various capacities- to be covered in all blocks
2. Milk tankers- to be covered in all blocks
3. Milk pumps- to be covered in all blocks
4. Processing equipment’s- to be covered in all blocks
5. Pasteurizers- to be covered in all blocks
6. Heaters and chillers - to be covered in all blocks
7. Washer and conveyors- to be covered in all blocks
8. Pipes and fittings- to be covered in all blocks
9. Cleaning equipment’s to be covered in all blocks
10. Electrical installations (UPS, generators, stabilizers, control panel)- to be covered in all blocks

Enhancing milk production and milk processing units

The quality of animals is 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 has been payable. 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.

1. Provision of veterinary medicine - to be covered in all blocks
2. Fodder development equipment and seed material- to be covered in all blocks
3. Milk testing equipment's- to be covered in all blocks
4. Equipment's for artificial insemination- to be covered in all blocks
5. Milk society buildings and cow shed - to be covered in all blocks
6. Cryogenic containers - to be covered in all blocks
7. Weighing machines - to be covered in all blocks
8. Computer accessories - to be covered in all blocks

Capacity building

India is the largest milk producer 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 percent 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 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 particular thing some trainings and camps has to be conducted. To make sure this the following intervention has been proposed.

1. Training of personnel of MPCS, Union and federation - to be covered in all blocks
2. Infertility camps - to be covered in all blocks

Marketing structures

Marketing is generally defined as the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives. The word Dairy marketing means where the milk is kept and marketing. Dairy marketing truly came into the public consciousness with the introduction of the “Got milk” campaign in 1993. Marketing plays a vital role not only in stimulating production and consumption, but also in accelerating the pace of economic development. An efficient marketing system minimizes costs, increases returns to farmers by reducing the number of middlemen or by restricting the commission of marketing system. To increase the income in dairy sector the suitable marketing structure is vital. For that the following structures have been suggested

1. Parlour structure- to be covered in all blocks
2. Milk product storage cabinets- to be covered in all blocks
3. Product billing system- to be covered in all blocks

Quality control -were covered in all blocks

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 of the following interventions have been suggested

1. Adulteration detection equipment’s- to be covered in all blocks
2. Milk testing equipment and laboratory - to be covered in all blocks

Processing and value addition

While adding value to farm and livestock products before they reach the local and international market is one of the key aims of Vision 2030. Product diversification has become an important aspect of business strategy with reasons for this increased focus being increased profitability, reduction in risk, increasing competition, higher growth and more efficient resource allocation. Value addition in the dairy value chain is still a challenge in our country. Value addition has been hailed as one of the solutions to the perishability challenge of milk by converting it to a more durable form and hence reducing farm losses. But only few of them

undertake the value addition In India. To maximize the value addition in rural areas the following interventions have been suggested

1. Skim milk powder plant- to be covered in all blocks
2. Dairy processing plants- to be covered in all blocks
3. Water and effluent treatment plants- to be covered in all blocks
4. Steam raising plant- to be covered in all blocks
5. Fat handling and other dairy equipment's- to be covered in all blocks

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 the 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

1. Construction of dairy farm and skim milk powder plant- to be covered in all blocks
2. BMC building- to be covered in all blocks
3. Cattle feed plants- to be covered in all blocks
4. Ware house for dairy products- to be covered in all blocks
5. Ice cream manufacturing buildings- to be covered in all blocks

Budget

The major themes proposed in the plan for Dairy sector with a total budget out lay of ₹ 22794.00 Lakh**.**

Implementing agency

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

Table 4.24. Budget requirement for Dairy Development sector

(₹ in Lakh)

Sl. No	Interventions	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Engineering section															
1	Electrical installation like Tranformemr, UPS, Stabilisers, Control Panel MCC etc.,	1	25	All blocks	1	25.00	1	25.00	1	25.00	1	25.00	0	0.00	4	100.00
2	Milk Storage Tanks of various capacities	1	15	All blocks	0	0.00	0	0.00	2	30.00	0	0.00	2	30.00	4	60.00
3	Tub washer, Canwashers, Crate conveyor systems.	1	10	All blocks	1	10.00	1	10.00	0	0.00	0	0.00	0	0.00	2	20.00
4	Point of Sale Machines and billing systems	1	0.25	All blocks	50	12.50	50	12.50	50	12.50	50	12.50	50	12.50	250	62.50
5	SS pipes and fittings	1	5	All blocks	1	5.00	1	5.00	1	5.00	1	5.00	1	5.00	5	25.00
6	Solar system for water heating	1	2	All blocks	2	4.00	2	4.00	2	4.00	2	4.00	2	4.00	10	20.00
7	Packing Machineries for milk, Butter, Ghee, SMP and Other Milk products	1	18	All blocks	1	18.00	1	18.00	1	18.00	0	0.00	0	0.00	3	54.00
8	Plate Heat type Chillers and pasteurizers	1	10	All blocks	1	10.00	1	10.00	1	10.00	0	0.00	0	0.00	3	30.00
9	Milk Pumps of Vaious capacities	1	0.5	All blocks	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
10	Generator of various capacities	1	20	All blocks	0	0.00	2	40.00	0	0.00	0	0.00	0	0.00	2	40.00
11	Cleaning In Place equipments with accessories	1	75	All blocks	0	0.00	1	75.00	0	0.00	0	0.00	0	0.00	1	75.00
	Procurement and Input															
12	Veterinary Medicine	1	2	All blocks	5	10.00	5	10.00	5	10.00	5	10.00	5	10.00	25	50.00
13	Two wheeler for AI technician	1	0.5	All blocks	50	25.00	50	25.00	50	25.00	50	25.00	50	25.00	250	125.00
14	Computer system with accessories	1	0.5	All blocks	50	25.00	50	25.00	50	25.00	50	25.00	50	25.00	250	125.00
15	Fodder seed materials	1	0.25	All blocks	100	25.00	100	25.00	100	25.00	100	25.00	100	25.00	500	125.00

Sl. No	Interventions	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
16	Fodder development equipments like chaff cutter, Mower etc.,	1	0.2	All blocks	100	20.00	100	20.00	100	20.00	100	20.00	100	20.00	500	100.00
17	Bulk Milk coolers of Various capacities	1	15	All blocks	5	75.00	5	75.00	5	75.00	5	75.00	5	75.00	25	375.00
18	Milk cans	1	0.035	All blocks	700	24.50	700	24.50	700	24.50	700	24.50	700	24.50	3500	122.50
19	Electronic weighing scales of various capacities.	1	0.3	All blocks	100	30.00	100	30.00	100	30.00	100	30.00	100	30.00	500	150.00
20	Electronic milk testing equipments	1	1.25	All blocks	100	125.00	100	125.00	100	125.00	100	125.00	100	125.00	500	625.00
21	Milking machine	1	0.8	All blocks	100	80.00	100	80.00	100	80.00	100	80.00	100	80.00	500	400.00
22	Cow shed	1	5	All blocks	100	500.00	100	500.00	100	500.00	100	500.00	100	500.00	500	2500.00
23	Society Buildings	1	20	All blocks	40	800.00	40	800.00	40	800.00	40	800.00	40	800.00	200	4000.00
24	Cryogenic containers	1	0.35	All blocks	40	14.00	40	14.00	40	14.00	40	14.00	40	14.00	200	70.00
25	Equipments for Artificial Insemination	1	0.5	All blocks	40	20.00	40	20.00	40	20.00	40	20.00	40	20.00	200	100.00
	Capacity building															
26	Training of personnel of MPCS, Union and Federation.	1	0.05	All blocks	300	15.00	300	15.00	300	15.00	300	15.00	300	15.00	1500	75.00
27	Infertility Camps	1	0.2	All blocks	200	40.00	200	40.00	200	40.00	200	40.00	200	40.00	1000	200.00
	Marketing															
28	Parlour structures	1	5	All blocks	25	125.00	25	125.00	25	125.00	25	125.00	25	125.00	125	625.00
29	Milk product storage cabinets	1	0.3	All blocks	400	120.00	400	120.00	400	120.00	400	120.00	400	120.00	2000	600.00
30	Product Billing systems	1	0.3	All blocks	25	7.50	25	7.50	25	7.50	25	7.50	25	7.50	125	37.50
	Quality control															
31	Adulteration detection equipments	1	4	All blocks	2	8.00	2	8.00	2	8.00	2	8.00	2	8.00	10	40.00
32	Milk testing equipment and Laboratory.	1	5	All blocks	1	5.00	1	5.00	1	5.00	1	5.00	1	5.00	5	25.00

Sl. No	Interventions	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Processing															
33	Dairy Processing Plants	1	6000	All blocks	0	0.00	0	0.00	0	0.00	1	6000.00	0	0.00	1	6000.00
34	Refrigeration Plants	1	500	All blocks	0	0.00	0	0.00	0	0.00	1	500.00	0	0.00	1	500.00
35	Water Treatment Plants. Reverse Osmosis plant	1	100	All blocks	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
36	Effluement treatment plant	1	100	All blocks	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
37	Steam raisning plant with accessories	1	100	All blocks	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
38	Fat handling equipments	1	200	All blocks	0	0.00	0	0.00	0	0.00	1	200.00	0	0.00	1	200.00
39	Dairy equipments	1	50	All blocks	1	50.00	1	50.00	1	50.00	1	50.00	1	50.00	5	250.00
	Civil work Infrastructure															
40	Construction of Dairy	1	1500	All blocks	0	0.00	0	0.00	1	1500.00	0	0.00	0	0.00	1	1500.00
41	BMC buildings	1	15	All blocks	5	75.00	5	75.00	5	75.00	5	75.00	5	75.00	25	375.00
42	Ice cream and dairy product buildings	1	2500	All blocks	0	0.00	0	0.00	0	0.00	1	2500.00	0	0.00	1	2500.00
43	Ware house for Dairy products	1	200	All blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	200.00	1	200.00
	Grand Total					**2306.00**		**2421.00**		**3826.00**		**11768.0**		**2473.00**		**22794.00**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.8. Fisheries sector

Fisheries sector is one of the important food production sectors in the State contributing to the livelihood as well as the food security of a large section of the economically under-privileged population. In recent years, it has assumed greater significance and its contribution towards the State and the National economy in terms of livelihood and nutritional security, rural employment generation and foreign exchange earnings have been enormous. Tamil Nadu ranks eighth place in Inland fisheries production in the Country.

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% 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% of the global fish production, the sector contributes to 1.1% of the GDP and 5.15% of the agricultural GDP. The total fish production of 10.07 million metric tonnes presently has nearly 65% contribution from the inland sector and nearly the same from culture fisheries. Hence, it's necessary to improve the fisheries development throughout the country.

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 interventions to enhance the production and growth of fisheries through increasing fishing efficiency of inland fishermen and fish farmers.

Enhancement of fisheries

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, it is suggested to implement the biological control of aquatic weeds by stocking of Grass Carps in Aquatic Weed Infested water bodies in this district

Inland fisheries (defined as inland capture plus aquaculture) are rapidly expanding and competing for natural resources with other uses. Consequently, there is an increasing need to monitor the sector to ensure responsible use of resources while increasing production. Introduction of aquaculture in reservoirs/PWD & Panchayat Tanks, excavated ponds, promotion of cage farming in open water bodies, integrated aquaculture practice with agriculture & livestock and promotion of brackish water shrimp/fish culture are the few key opportunities available for aquaculture in Tamil Nadu.

In addition to the popular inland fish varieties, the need for mass multiplication of new fish varieties/ ornamental varieties like Nile Tilapia was stressed and establishing Nile Tilapia hatchery by government to ensure the production and supply of quality seed was suggested. In the reservoirs, setting up of 'Tilapia Parks' can also be considered. In this regard, it was suggested that a comprehensive Leasing Policy shall be prepared and released..

The interventions are,

1. Biological Control of Aquatic Weeds by Stocking of Grass Carps in Aquatic Weed Infested water bodies – to be covered in Bodinaickanur and Periyakulam blocks
2. Increasing Fishing Efficiency of Inland Fishermen and Fish Farmers to be covered in Periyakulam block
3. Enhancement of Fish production in irrigation tanks and Panchayat tanks by stocking fish seeds- to be covered in Andipatti, Bodinaickanur, , Periyakulam, and Theni blocks
4. Propagation of Fish Culture in Multi-purpose farm ponds in Tamil Nadu to be covered in Periyakulam block
5. Up gradation of Fishing Efficiency of Inland Fishermen of Tamil Nadu- to be covered in Periyakulam block
6. Promotion of Ornamental fish culture- to be covered in Periyakulam, and Theni blocks

Creation of infrastructure facilities

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. 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 the 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 fertilizer is external. Normally one kg fish releases about one lakh eggs.

These interventions include,

1. Establishment of modern mobile fish marketing vehicles to be covered in Theni block
2. Establishment of mini lab facilities in Government fish farms to be covered in Periyakulam block

Capacity building programme

Capacity building programme is to strengthen the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, 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. Promotion of innovation in application of information communication technology in fisheries and dissemination of knowledge plays a critical role in the knowledge-based growth. Therefore, it is imperative to update the professional skills of farmers and extension specialists in the latest knowledge and techniques in the field of their specialization to bring about the desired qualitative improvement and necessary orientation to contemporary problems to make research and education more relevant.

Farmer's training programme is important to disseminate information about new technologies so that the farmer is able to make use of the latest agricultural developments. There also exists a gap between research findings and the needs of farmers. For technology to be successful, it is important that it should serve a useful purpose to the end user. The institution that bridges the gap between farmers and agricultural research scientists is the Agricultural Extension Service. This service works through an Agricultural Research System in the States.

The major interventions are

1. Exposure visits to farmers to other states- to be covered in Theni block
2. Training to fish farmers- to be covered in Andipatti, Chinnamanur, Periyakulam, and Theni blocks
3. Providing trainers training and exposure visit to Departmental staff - to be covered in , Periyakulam block

4. Increasing fish production in Tamil Nadu through production and distribution of genetically improved Tilapia- to be covered in Periyakulam and Theni blocks

Budget

The major themes proposed in the plan for Fisheries sector with a total budget out lay of ₹ 719.00 Lakh**.**

Implementing agency

Department of Fisheries will be implementing the project.

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Table 4.25. Budget requirement for Fisheries Production

(₹ in Lakh)

Sl. No	Interventions	Unit	Unit cost	Blocks covered	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.	1	0.75	Periya kulam	25	18.75	0	0.00	0	0.00	0	0.00	0	0.00	25	18.75
2	Propagation of Fish Culture in Multi-purpose farm ponds in Tamil Nadu	1	1.5	Periyakulam	0.25	0.38	0	0.00	0	0.00	0	0.00	0	0.00	0.25	0.38
3	Promotion of Ornamental fish culture	1	3	Periya kulam and Theni	1	3.00	1	3.00	0	0.00	0	0.00	0	0.00	2	6.00
4	Increasing fishing efficiency of inland fishermen and fish farmers	1	0.075	Periyakulam	92	6.90	92	6.90	92	6.90	92	6.90	0	0.00	368	27.60
5	Increasing fish production in Tamil Nadu through production and distribution of genetically improved Tilapia	1	0.79	Periyakulam and Theni	2	1.58	0	0.00	0	0.00	0	0.00	0	0.00	2	1.58
6	Enhancement of Fish production in irrigation tanks and Panchayat tanks by stocking fish seeds	ha	0.02	Andippatti, -Bodinayakkanur, Periya kulam, Theni	2000	40.00	2000	40.00	2000	40.00	2000	40.00	0	0.00	8000	160.00
7	Biological Control of Aquatic Weeds by Stocking of Grass Carps in Aquatic Weed Infested water bodies	ha	2.36	Bodinayakkanur, Periyakulam	150	354.00	50	118.00	0	0.00	0	0.00	0	0.00	200	472.00
	Section Total					**425.00**		**168.00**		**47.00**		**47.00**		**0.00**		**686.00**

Sl. No	Interventions	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Infrastructure and Assets															
8	Establishment of mini lab facilities in Government fish farms	1	5	Periyakulam	2	10.00	0	0.00	0	0.00	0	0.00	0	0.00	2	10.00
	Section Total				0	10.00	0	0.00	0	0 .00	0	0 .00	0	0.00	0	10.00
	Capacity building programme															
9	Establishment of modern mobile fish marketing vehicles	1	12.1	Theni	1	12.10	0	0.00	0	0.00	0	0.00	0	0.00	1	12.10
10	Exposure visit to farmers to other states	1	0.06	Periyakulam	40	2.40	40	2.40	0	0.00	0	0.00	0	0.00	80	4.80
11	Providing trainers training and exposure visit to Departmental staff	1	0.1	Periyakulam	9	0.90	0	0.00	0	0.00	0	0.00	0	0.00	9	0.90
12	Training to fish farmers	1	0.75	Andippatti, Chinnamanur, Periyakulam, Theni	2	1.50	2	1.50	1	0.75	1	0.75	0	0.00	6	4.50
	Section Total					**17.00**		**4.00**		**1.00**		**1.00**		**0.00**		**22.00**
	Grand Total					**452.00**		**172.00**		**48.00**		**48.00**		**0.00**		**719.00**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.8.2. Fisheries Research

Fisheries Training Centre

Theni district spreads over an area of 3242.3 sq. km. The district having 59950 ha water spread area of inland water resources with a minimal fish production of 18.9 tonnes. The following rivers flow across the district Periyar River, Vaigai River, Kottagudi River, Suruliyar River, Varaganathi River, Manjalar River and Varattaru River. A government fish seed farm is located near Manjalar. Periyar Dam, Vaigai Dam, Manjalar Dam and Sothuparai Dam are the four major dams located in the different part of the district. The fish production recorded in this district is not upto considered level with existing water resources available in the district. In the light of above a Fisheries Training Centre could be created to disseminate the existing fish culture practices to public and analysis the resource survey for future research. It will be helpful to identify the training needs of the farmers and their demands to be met. Also the resources for aquaculture production are to be sustainably used for production enhancement and increasing revenue to farmers.

Components

1. Enhancing per capita consumption of fish to be covered in Theni block
2. Ensuring Nutritional security through fish and fishery production to be covered in Theni block

Project goal

The objective of the project is to establish the Training centre for fisheries.

Budget

The major themes proposed in the plan for Fisheries Research sector with a total budget out lay of ₹ 141.60 Lakh**.**

Project implementing agency

The project will be implemented by Tamil Nadu Fisheries University.

Expected outcome

Fisheries Training Centre created will ensure dissemination of the existing fish culture practices to public and analysis the resource survey for future research.

Table 4.26. Budget requirement for Fisheries research (TNFU Fisheries)

(₹ in Lakh)

Sl. No	Interventions	Unit cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	**Aquaculture**														
a	**Enhancement of per capita consumption of fish**														
1	Awareness campaign on health beneficial attributes of fish	0.005	Theni	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	Theni	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00
b	**Ensuring nutritional security through fish and fishery products**														
1	supply of preserved ready to eat and ready to cook fish products through public distribution sytems	12.9	Theni	0	0.00	0	0.00	1	12.90	0	0.00	0	0.00	1	12.90
2	Supply of fish and fish products in mid day meal programme	12.9	Theni	0	0.00	1	12.90	0	0.00	0	0.00	0	0.00	1	12.90
3	Supply chain management to promote consumption of farmed freshwater fishes	64.5	Theni	1	64.50	0	0.00	0	0.00	0	0.00	0	0.00	1	64.50
	Grand total				**64.76**		**63.16**		**13.16**		**0.26**		**0.26**		**141.60**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.9. Public Works Department

Increasing the ground water level

The Public Works Department and Panchayat union tanks, ponds and supply channels play an important role in the irrigation of Theni district. The various sources of irrigation are canals, tanks, tube wells, open wells and springs. Proper maintenance and upkeep would make the systems more effective. The analysis of growth rates of irrigation sources indicated that, irrigation through canals; tanks and other sources were in decreasing trend for both net and gross area irrigation. Most of the canals and tanks are silted and bushes like *Prosopis*, *Acassia* spp and water hyacinth occupied major part of the tanks and canals, there by the storage capacity of the tank is very much reduced. Hence, to raise the water table level, construction of check dams and modernization of tanks need to be taken up in canals to increase the storage capacity of the tanks and increasing the ground water table in and around area of check dams and there by crop cultivation area in tank ayacut area can be increased.

Project components

- Construction of check dams across the rivers to be covered in Bodinaickanur , Theni and Uthamapalayam block
- Formation of Pond near Silamarathupatti to be covered in Bodinaickanur block
- Modernization of tanks to be covered in Periyakulam block

Budget

It is proposed to incur Rs.**3985.00 Lakh** over a period of five years.

Expected outcome

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

Implementing agency

Department of Public Works will be implementing the project

Table. 4.27. Budget estimate for Public Works Department (PWD)

(₹ in Lakh)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Costruction of checkdam across Pillaiyar oothu odai in Devaram village of Uthamapalayam taluk in Theni District.	Ha	0.48	Uthamapalayam	68.23	33.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.23	33.00
2	Formation of Pond near Silamarathupatti village of Bodinaickanur taluk in Theni District.	Ha	4.81	Bodinayakkanur	20.81	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.81	100.00
3	Costruction of checkdam across Valaiyar near Mamarathuvayal in Buthipuram village of Bodinayakkanur taluk in Theni District.	Ha	1.36	Bodinayakkanur	52.95	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.95	72.00
4	Costruction of checkdam across Valaiyar near Nattamai Thoppu in Buthipuram village of Bodinayakkanur taluk in Theni District.	Ha	3.42	Bodinayakkanur	20.46	70.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.46	70.00
5	Modernisation of Pambar anicut supply channel in Thamaraikulam village of Periyakulam taluk in Theni District.	No	800.00	Periyakulam	0.00	0.00	1.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	800.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
6	Modernisation of Periyakulam tank supply channel in Thenkarai village of Periyakulam taluk in Theni District.	No	500.00	Periyakulam	0.00	0.00	1.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	500.00
7	Modernisation of Pappayampatti tank supply channel in Thamaraikulam village of Periyakulam taluk in Theni District.	No	600.00	Periyakulam	0.00	0.00	0.00	0.00	1.00	600.00	0.00	0.00	0.00	0.00	1.00	600.00
8	Modernisation of Pudu anicut supply channel in Genguvarpatti village of Periyakulam taluk in Theni District.	No	600.00	Periyakulam	0.00	0.00	0.00	0.00	1.00	600.00	0.00	0.00	0.00	0.00	1.00	600.00
9	Construction of check dam across Pillaiyaruthu odai near Thevaram village of Uthamapalayam taluk in Theni District	No	60.00	Bodi	0.00	0.00	0.00	0.00	1.00	60.00	0.00	0.00	0.00	0.00	1.00	60.00
10	Construction of check dam across Valaiyar odai near Nattanmai Thoppu in Boothipuram village of Bodi taluk in Theni District	No	75.00	Bodi	0.00	0.00	0.00	0.00	0.00	0.00	1.00	75.00	0.00	0.00	1.00	75.00
11	Construction of check dam across Valaiyar odai near Mamarathuvayal in Boothipuram village of Bodi taluk in Theni District	No	75.00	Bodi	0.00	0.00	0.00	0.00	0.00	0.00	1.00	75.00	0.00	0.00	1.00	75.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
12	Construction of check dam across Vaigai river near Solaithevanpatti village of Bodi taluk in Theni District	No	350.00	Theni	0.00	0.00	0.00	0.00	0.00	0.00	1.00	350.00	0.00	0.00	1.00	350.00
13	Construction of check dam across Vaigai river near Kadamalaigundu village of Theni taluk in Theni District	No	300.00	K. Myladumparai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	300.00	1.00	300.00
14	Construction of check dam across Vaigai river near Pallapatti village of Bodi taluk in Theni District	No	350.00	K. Myladumparai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	350.00	1.00	350.00
	Total					**275.00**		**1300.00**		**1260.00**		**500.00**		**650.00**		**3985.00**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

4.10. Co operation

In Tamil Nadu, Cooperatives play a prominent role in the day to day affairs of the common man. They help the farmer to improve agricultural production by providing crop loans and by supplying agricultural inputs such as fertilizers and insecticides. They also enable the farmer to store and market his produce. In most districts, cooperatives run the fair price shops which provide the rural and urban poor essential commodities at highly subsidized prices. The policy of the State Government is to ensure adequate availability of essential commodities of acceptable quality at an affordable price to the general public particularly the poor. Public Distribution System has been one of the most crucial elements in food policy and food security system in the country.

Cooperatives all over the world have become an effective and potential instrument of economic development. The Cooperative Movement in Tamil Nadu has witnessed over the decades, substantial growth in diverse areas of economy. There is not a single major sphere of economic activity which has not been touched by Cooperatives. Cooperatives are also envisaged as an instrument for implementing many important policies like agricultural credit, urban credit, market intervention, price support for agricultural commodities through Cooperative Wholesale stores, Public Distribution system etc. The office infrastructure has to be improved. The intervention is proposed for creating of infrastructure facilities.

Project components

- Office Infrastructure - construction of compound wall and renovation of office building to be covered in all blocks
- Capital Asset Creation to be covered in Chinnamanur, Cumbum, and Uthamapalayam blocks

Budget

It is proposed to incur Rs. 954.48 Lakhs over a period of five years.

Implementing agency

Department of Cooperation will be implementing the project.

Table. 4.28. Budget estimate for Co- Operation

(₹ in Lakh)

Sl. No	Interventions	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Infrastructure													
1	Construction of Compound wall	All blocks	10	151.85	12	106.50	12	138.50	13	121.00	8	61.00	55	578.85
2	Construction of Office Building	B2,B8	1	20.00	1	10.50	0	0.00	0	0.00	0	0.00	2	30.50
3	Renovation of Godown	B3,B4,B8	3	21.18	2	7.00	1	5.00	3	13.00	2	9.00	11	55.18
4	Renovation of Office Building	All blocks	10	83.50	9	38.85	9	64.50	6	52.00	10	43.50	44	282.35
5	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,	All Blocks	0	0.00	3	6.00	0	0.00	0	0.00	1	1.60	4	7.60

Sl. No	Interventions	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Automatic Printer machine, Conveyer, E-Tender process, Fork Lifter, Gunny Bag Stitching machine, Jewel tester, Pallets, Tarpaulin, Trolley and Printing Press machineries)													
	Total			**276.53**		**168.85**		**208.00**		**186.00**		**115.10**		**954.48**

Andipatti-B1, Bodinaickanur-B2, Chinnamanur-B3, Cumbum-B4, kadamalaikundu-B5, Periyakulam-B6, Theni-B7, Uthamapalayam-B8

Table 4.29. Budget Abstract for Theni District

(₹. in Lakh)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	5818.76	4406.56	4417.74	5257.44	5070.76	24971.26
2	Agricultural Research (TNAU)	465.00	290.00	285.00	100.00	20.00	1160.00
3	Horticulture	5093.49	8941.56	7935.35	8805.89	9880.37	40656.66
4	Agricultural Engineering	627.09	437.80	469.65	476.64	485.44	2496.62
5	Agricultural Marketing	2671.38	482.10	552.00	289.70	555.70	4550.88
6	Seed Certification & Organic Certification	10.00	13.36	0.00	0.00	0.00	23.36
7	Animal Husbandry	669.33	1037.08	527.08	937.08	663.33	3833.90
8	Animal Science Research (TANVAS)	0.00	0.00	0.00	0.00	0.00	0.00
9	Dairy Development	2306.00	2421.00	3826.00	11768.00	2473.00	22794.00
10	Fisheries	452.00	172.00	48.00	48.00	0.00	719.00
11	Fisheries Research (TNFU)	64.76	63.16	13.16	0.26	0.26	141.60
12	Water Resource Organization (PWD)	275.00	1300.00	1260.00	500.00	650.00	3985.00
13	Civil Supplies & Co-Operation	276.53	168.85	208.00	186.00	115.10	954.48
	Total	**18729.34**	**19733.47**	**19541.98**	**28369.01**	**19913.96**	**106286.76**

The total budget requirement for the implementation of various interventions by different departments in Theni district is **₹. 106286.76** Lakh.


KARNATAKA
KERALA
SRI LANKA