

I. AGRICULTURE

1. Introduction

Agriculture development is the key to poverty alleviation and development of rural areas. Tamil Nadu Government is keen on promoting agriculture sector. Agriculture plays the role of a driver which propels growth in Secondary and Tertiary sectors. In this backdrop, Government of Tamil Nadu with a serious concern to invigorate agriculture sector and ensure food security and balanced nutrition for all, has brought in various path breaking initiatives so as to usher in **Second Green revolution**. Concomitant to this vision, the Government is on the anvil of developing agriculture at farm level, by introducing **Farm level interventions** through computer based **Farm Crop Management System** which would integrate the farmers, extension and research wing and ensure timely input supply, complete adoption of technology, crop growth monitoring, pest and disease surveillance and marketing linkages.

As the pressure on land is increasing day by day and the cultivable area is continuously shrinking, which necessitates effective utilization of available land and efforts to increase the cropping intensity. As an initial measure, fallow lands suitable for agriculture will be identified and brought under cultivation, besides advocating **Integrated Farming System** wherein agriculture is integrated with allied activities such as animal husbandry, poultry, aquaculture, sericulture etc., for supplementing and sustaining the income of farmers. Complementing this effort, **crop diversification** will be promoted for giving wider options to obtain good remuneration.

Apart from this, initiatives such as individual farm based recommendations, suitable cropping pattern based on the soil, irrigation and microclimate are suggested through comprehensive **Farmers Integrated Handbook**, Permeation of **innovative technologies** viz., **System of Rice Intensification, Improved pulses production technologies** at farm level as a **whole village concept, Sustainable Sugarcane Initiatives, Precision Farming, Micro Irrigation** etc., are focused to double the production and triple the income of the farmers especially small, marginal farmers, Scheduled Caste and Scheduled Tribe farmers.

The Government to ensure effective reach of scheme benefits to the farmers and to improve extension outreach at farm level has provided **new vehicles**, appointed **Block Technology Managers, Subject Matter Specialists with other supporting staff and Farmers' Friend** besides establishing **Farmers' Hub** for speedy delivery of integrated package of extension information.

The Government with a determination to achieve an ambitious target of doubling the food grain production during 12th Five Year Plan, has fixed 120 L.MT for 2012-13 for which various new initiatives and approaches have been chalked out.

2. Season

2.1. Rainfall

The season wise rainfall received during 2011 and 2012 is as follows:-

(in mm)

Season	2011			2012 (upto 11.04.2012)		
	Normal Rainfall	Actual Rainfall	Deviation (%)	Normal Rainfall	Actual Rainfall	Deviation (%)
Winter Season (Jan. – Feb)	31.30	34.80	11.20	31.30	9.50	- 70
Summer season (March-May)	127.80	140.00	9.50	129.7	6.90	- 95
South West Monsoon (June – Sep)	321.20	300.50	-6.40			
North East Monsoon (Oct.– Dec)	441.20	540.80	22.60			
Total	921.50	1016.10	10.28			

During 2011-12, the rainfall during summer and South West Monsoon with wide variation in spatial and temporal distribution resulted in lesser coverage under rainfed crops during Kharif 2011. The North East Monsoon which was active from 24th October,2011 brought copious

rains which gave a fillip to samba paddy crop resulting in good coverage in almost all the districts.

Against all these odds, early water release from the Mettur Dam for irrigation ie., on 06th June, 2011 against the scheduled date of 12th June, enabled the delta farmers to take up Kuruvai cultivation well in advance more enthusiastically in an extent of 1.388 L.ha which is 0.649 L.ha more than the previous year coverage. During 2011-12, totally an extent of 6.90 L.ha has been covered under paddy in the delta districts compared to 6.18 L.ha covered during 2010-11 showing an increase of 72,000 Ha. under paddy.

2.2. Crop damage during 2011- 12

2.2.1. Damage due to North East Monsoon rains

Even though North East monsoon brought copious rains in the state, heavy rainfall in some of the districts affected crops in an extent of about 3685 Ha.

2.2.2. Damage due to Thane Cyclone

The cyclone **Thane** which hit Tamil Nadu on 30.12.2011 caused extensive damages to paddy, millets, pulses, sugarcane, groundnut and coconut in the districts of Cuddalore, Villupuram, Thanjavur, Nagapattinam, Thiruvarur, Kancheepuram, Thiruvallur, Dharmapuri and Thiruvannamalai. The crop damages were above 50 per cent in an extent of 1,85,922 Ha. affecting the livelihood of 2,51,129 small and marginal farmers and 30,081 other farmers.

The Government, immediately released ₹ 214.673 crores as relief assistance for the crop damages (₹10,000/- per hectare for paddy crop, ₹ 7500/- for other irrigated crops and ₹4000/- for other rainfed crops) to the

affected farmers in these districts. Hon'ble Chief Minister also announced a special package of assistance for a sum of ₹ 35.67 crores for the affected farmers to take up re-cultivation and re-plantation of agricultural crops. This package would be applicable for one season to the farmers who have lost their annual crops viz., paddy, pulses, millets, groundnut, sugarcane etc., and to one year for those farmers who have lost their coconut crop.

The Government has sanctioned a sum of ₹ 15.80 crores for cutting and removal of broken / fallen coconut trees due to cyclone **Thane** besides providing ₹ 13.53 crores as maintenance subsidy for the rejuvenation of coconut garden for subsequent 4 years.

3. Area and Production during 2010-2011 & 2011-12.

The estimates of area and production for 2010-11 and anticipated achievement during 2011-12 are as follows:-

Crop	Area (L.ha.)			Production (L.MT)		
	Target	Anticipated Achmt. (2011-12)	Achmt. during 2010-11	Target	Anticipated Achmt. (2011-12)	Achmt. during 2010-11
Rice	22.00	20.74	19.06	85.50	79.62	57.92
Millets	10.00	9.51	6.31	23.50	23.08	15.57
Pulses	10.00	9.07	6.37	6.00	3.30	2.46
Total food grains	42.00	39.32	31.74	115.00	106.00	75.95
Oilseeds	6.50	5.56	4.49	14.62	12.17	9.33
Cotton (L.Bales)	1.50	1.39	1.21	4.00	3.08	2.48
Sugarcane (cane)	3.50	3.90	3.16	472.50	409.32	342.52
Total	53.50	50.16	40.60			

Compared to 2010-11, the total cultivated area under agricultural crops is expected to increase by 24 % and the total food grain area and production is anticipated to increase by 24% and 40% respectively during 2011-12.

Inspired by the vision of our Hon'ble Chief Minister to usher in **Second Green Revolution**, the Government took manifold proactive steps for the development of agriculture and the welfare of farmers. Due to the various crop specific strategies and technologies adopted in a larger extent, the food grain production is expected to reach 106 L.MT during 2011-12 compared to 75.95 L.MT estimated during 2010-11.

Area and Production Programme for 2012-2013.

Crop	Area (L.ha)	Production (L.MT)	Productivity (Kg/ha)
Rice	22.00	86.50	3932
Millets	11.00	26.95	2450
Pulses	10.40	6.55	629
Total food grains	43.40	120.00	
Oilseeds	6.60	15.00	2273
Cotton (L.Bales)	1.55	4.20	461
Sugarcane (cane)	3.60	493.50	137
Total	55.15		

4. Second Green Revolution in Tamil Nadu – Increase in Farm Productivity and Farmers' Income.

The Government has resolved to usher in **Second Green Revolution** in Tamil Nadu to improve the economic status of the farmers for which it has set itself to bring in

necessary changes in strategies and approaches in agriculture as follows:-

1. Increasing the net cultivable area and productivity with crop specific interventions.
2. Soil health management approaches
3. Water resources management.
4. Input supply management system.
5. Crop specific strategies to bridge the yield gap.
6. Improving the economic status of farmers by increasing the productivity and increase their income three folds through farm based interventions and Integrated Farming System approach with extensive use of Information Technology.
7. Diversifying cultivation in favour of commercial crops while ensuring food and nutritional security.
8. Strengthening research and extension services in Tamil Nadu for "end-to-end" involvement of extension staff with individual farmer.
9. Capacity building for excellence.

Thrust Areas

- Soil health care and increasing the productivity per unit area
- Raising the income of farmers
- Strengthening and improving agriculture infrastructure
- Promoting Micro Irrigation to increase Water Use Efficiency
- Increasing the cropping and irrigation intensity
- Providing access to quality inputs
- Bringing fallow lands under cultivation

4.1. Increasing the net cultivable area and productivity with crop specific interventions

The innate factors such as conversion of fertile agricultural lands for non-agricultural purposes, erratic and uneven distribution of rainfall, dwindling ground water resources, indiscriminate use of fertilizers and pesticides, deterioration in soil health are posing challenges to agriculture. This has resulted in reduction of gross cropped area, net sown area and cropping intensity. Further, poor adoption of crop management practices and generalized cropping system have led to decline in organic matter content and marginalization of land holdings inhibiting large scale adoption of mechanized technologies.

The Government has come out with a stronger vision for effective utilization of available agricultural lands with the following objectives:-

- Identification and conversion of fallow lands into cultivable lands to promote less water intensive and more remunerative crops
- Reclamation of saline and alkaline soils
- Improvement and sustenance of soil health through adoption of organic farming in a larger extent
- Crop rotation and crop diversification to dispense with the practice of mono cropping without compromising food and nutritional security
- Agro climatic zone wise location specific desired cropping pattern
- Increasing the cropping intensity

Activities like identification of fallow lands suitable for cultivation at village level, analyzing the reasons for leaving the lands as fallow, devising suitable strategies to curb the increase in fallow lands, adopting site specific interventions

for desired cropping pattern and developing suitable irrigation sources such as farm ponds, check dams, percolation ponds to bring back atleast 5–10% of fallow area under cultivation have been envisaged, besides compensating the pressure of agricultural land conversion for other purposes.

The Government has also devised suitable strategies like recommendation of village-based Integrated Nutrient Management through stratified soil sampling and analysis, promotion of cluster approach and village concept, promotion of organic farming, Integrated Farming System, Rainfed Area Development, appropriate market linkages to enable the farmers to take up agriculture as a lucrative profession.

4.2. Soil Health Management Approaches

The preservation of soil fertility and nutrition management are much imperative for a profitable agriculture in a long run. The present fertility status of the soil is causing greater concern due to mono cropping, intensive cropping and indiscriminate use of chemical fertilizers and insufficient usage of organic fertilizers. Hence, it has become necessary to explore ways to rejuvenate soil health for which Government is taking suitable soil management approaches which are as follows:-

- ❖ Detailed soil survey to recommend suitable cropping system
- ❖ Distribution of Farmers' Integrated Hand Book for ensuring balanced fertilizer application in the recommended cropping system
- ❖ Encouraging cultivation of green manure crops in a larger extent.
- ❖ Emphasizing and encouraging organic farming

- ❖ Reclamation of saline and alkaline soils in inland areas besides coastal areas
- ❖ Correcting micro nutrient deficiencies

4.3. Water Resources Management

Water, one of the important integral components in agriculture has become a scarce resource in Tamilnadu. Hence, the Government is exploring all avenues to utilise the available water for irrigation to its best.

With the main aim to improve the Water Use Efficiency and enhance crop productivity, the Government is focusing on scientific approaches such as promotion of crop diversification, intercropping, adoption of Integrated Farming System, improving water holding capacity of the sub-basins, adoption of System of Rice Intensification and Improved Pulses production technologies as a village concept in a larger extent, popularization of Sustainable Sugarcane Initiatives, promotion of Precision Farming and Micro Irrigation, de-silting of tanks and ponds to increase their capacity, construction of water harvesting structures such as check dams, farm ponds, percolation ponds besides rain water harvesting structures for recharging ground water. Government will also emphasize on intensification of irrigated area development and water management schemes to prohibit the diversion of irrigation water for other purposes.

4.4. Input Supply Management System.

Ensuring adequate stocking and timely distribution of critical inputs such as seeds, fertilizers, micro nutrients, bio-fertilizers, plant protection chemicals, credit, etc., to the farmers at right time at right place is the first and foremost priority of extension service.

4.4.1. Seeds

The importance of timely availability of certified quality seeds with good yield potential and increasing the Seed Replacement Rate coupled with varietal replacement is the need of the hour. The Government on a perspective vision has vowed to evolve a comprehensive seed plan, create seed banks at village level with buffer stocks of seed materials for various crops, produce seeds on Public Private Partnership mode, strengthen infrastructure facilities for scientific seed production, processing and storage, raise seed farms on a cluster / village concept approach, promote community farming to enable the farmers to produce their own seeds specific to their region and produce seeds on a contract basis at farmers' field.

4.4.2. Fertilisers

The use of chemical fertilizers and their intensification in many areas are being reviewed and the Government will encourage application of appropriate fertilizers relevant to the soil and crops based on soil test recommendations. The application of slow release fertilizers combined with organic fertilizers will be promoted to improve the fertilizer use efficiency and also the nutritional status of the soil by working in a complementary manner with the natural ecosystem of the soil.

As Precision Farming and Micro Irrigation schemes are being taken up in a large scale, the Government will promote Water Soluble Fertilizers (WSF) / Liquid bio-fertilizers for various crops like cotton, maize, sunflower, groundnut, sugarcane and coconut as this provides optimum quantity of water & nutrients in well balanced proportion directly to the active root zone.

4.4.3. Plant Protection Management

Tamil Nadu is one of the pioneer states in successful adoption of Integrated Pest Management (IPM) and Non-Pesticidal Management(NPM) in a big way. The adoption of NPM in several rainfed and irrigated cropping systems has led to change over in policy and research attention on these systems. Tamil Nadu State is particularly attentive to increased adoption of this productivity enhancing, cost effective and eco-friendly production practices. Further, the increased use of pesticides has disturbing consequences on the present farming system, particularly due to the development of resistance, resurgence of crop pests and decline in population of the natural enemies. Hence, the Government besides stepping up investment in research and development of technology on NPM, has also taken steps to promote usage of bio-pesticides which are more effective in managing crops in an environmentally protective manner.

4.4.4. Bio-Control Agents

Increasing demand for organic produces and higher returns have made the farmers to incline towards organic farming for which usage of biocides and bio-control agents are essential. Bio control agents are produced through the Government owned 12 Bio Control Agents Production Centres and distributed to the farmers under various subsidy schemes to control pests like rice leaf folder, sugarcane internode borer, coconut black headed caterpillar, coconut rhinoceros beetle, cotton bollworm, groundnut red hairy caterpillar and Prodenia.

4.5. CROP SPECIFIC STRATEGIES

4.5.1. System of Rice Intensification (SRI) technology as a village concept.

SRI which is a water saving technology was introduced as a whole village concept for the first time during 2011-12. Potential SRI Villages at suitable locations were identified to act as a model for providing best demonstration effect. It was ensured that the technologies were completely adopted in the entire village through demonstrations under various schemes. This had resulted in increased coverage of 10.01 L.ha under SRI compared to 8.50 L.ha covered during 2010-11.

During 2011-12, **1880 SRI villages were organized** and an extent of 1,74,605 hectares of paddy were raised by adopting this technology. During 2012-13, "SRI village" concept will be implemented in 2000 villages covering an area of 1,90,000 hectares .The TANWABE Groups, Self Help Groups and Commodity Interest Groups will be involved in raising mat nursery, transplantation and harvest by providing appropriate training under ATMA.

4.5.2. System of Millets Intensification

With the objectives to increase area under millets, ensure food and nutritional security, demonstrate improved production technologies, enhance the productivity and augment millets production, **Initiatives for Nutritional Security through Intensive Millets Promotion (INSIMP)** was implemented during 2011-12 comprising activities such as demonstrations, production of high yielding varietal seeds, installation of pre processing and small processing units and value addition.

During 2012-13, a cafeteria of technologies such as appropriate cropping systems, transplantation of seedlings in irrigated millets, promotion of micro irrigation and precision farming in millets especially maize, use of farm machineries such as chisel plough, broad bed furrow former, seed drill, long handled weeder, top dress fertilizer applicator, maize sheller etc., will be advocated for intensifying millets cultivation to increase the production and productivity of millets.

4.5.3. Improved Pulses Production Technologies as a Village Concept

To meet the dietary protein requirement and to bridge the production - demand gap in pulses, an integrated production technology concept was implemented in a contiguous area of minimum of 50 Ha. per village in **1695 potential Pulses villages** by adopting the recommended critical steps with more focus on application of **Pulse Wonder** to increase the pulses productivity. An area of 94,957 Ha. was brought purely under pulses during 2011-12. This scheme will be implemented during 2012-13 also.

To encourage the cultivation of pulses as pure crop, schemes such as **Intensification of Redgram cultivation** and **Accelerated Pulses Production Programme** were implemented in 2011-12. The State Government for the first time, sanctioned a sum of ₹1048 lakhs towards **Micro irrigation exclusively for pulses** in an area of 5000 Ha. wherein portable sprinklers and rainguns were provided to the farmers at subsidized cost. It is programmed to upscale and adopt this technology in an extent of 10,000 Ha during 2012-13.

Due to the thrust given by the Government, the area under pulses is pegged at 9.07 L.ha for 2011-12 which is

42% more than the area covered during 2010-11. It is also expected that the production will reach around 3.30 L.MT during 2011-12 compared to 2.46 L.MT estimated during 2010-11.

As the production of redgram is largely influenced by demand, availability and price, the Government will introduce an improved technology during 2012-13 to increase the productivity, attain self sufficiency in redgram production and increase the income of the farmers.

4.5.4. Sustainable Sugarcane Initiatives (SSI)

SSI is a comprehensive sugarcane production technology which increases productivity by about 30% resulting in better returns to farmers. This was introduced during 2011-12 as this technology is noteworthy for reduced requirement of planting material and water, increased fertilizer use efficiency by adoption of Precision Farming and mechanized harvest. This was adopted in an area of 3000 Ha. during 2011-12 in co-ordination with the Department of Sugars and preference was given to small and marginal farmers for adopting this technology. Now it has been programmed to implement this technology in an increased area of 6000 Ha. during 2012-13.

4.5.5. Precision farming, a cultivation protocol which results in 30% to 40% higher yield in oilseeds, maize, cotton, sugarcane, etc., with high quality first grade marketable produce is being promoted among the farmers. During 2011-12, this technology was adopted in 4000 Ha. in various agricultural crops. This scheme will be continued during 2012-13 also.

4.5.6. Micro Irrigation, a most important intervention which helps in judicious water usage, increased input use

efficiency, less weed infestation, maintenance of optimum plant population, yield increase and high keeping quality is being promoted in a larger extent. Considering the importance, **the Government has also announced 100% subsidy for small and marginal farmers and 75% for other farmers.** During 2011-12, an area of 15,000 hectares of agricultural crops were brought under Micro Irrigation and it is proposed to bring 20,000 Ha. during 2012-13 besides establishing Micro irrigation villages across the state.

4.6. Farm Based Interventions and Integrated Farming System Approach.

4.6.1. Farm Based Interventions – Bridging the yield gap through bottom up approach – Aggregation of village level upto block and district level successively.

Objectives

- To enable farmers to adopt improved cultivation methodology and techniques in their land holdings
- To provide linkages and easy access to critical inputs in time
- To enable farmers to use most appropriate farm machineries to reduce the drudgery, labour cost and get higher production and productivity
- To empower farmers with complete access to the information related to their farming operations
- To enable extension functionaries to become a friend and guide of farmers throughout cultivation cycle

The activities such as development of crop cultivation matrix, finalization of future cropping plan specific to individual farm, assessment of critical inputs requirement at village, block and district level, converging the efforts of

all stakeholders by sharing information through internet on AGRISNET portal and market linkage based on the assessment of production to get remunerative prices for the produce will be carried out holistically, to develop each and every farm, which will have a direct impact on production and productivity leading to a better farming.

4.6.2. Farm Level Planning, Management of Inputs and Farmers Specific Extension.

4.6.2.1. Farm Crop Management System (FCMS):

To implement farm level interventions through micro level planning and execution by the Departments viz., Agriculture, Horticulture, Agricultural Engineering, Agricultural Marketing and TNAU, a specially developed software package “**Farm Crop Management System**” has been developed. This will help in planning at individual farm level with an aim to bridge the yield gap backed with IT enabled extension and strong marketing support, to usher in **Second Green Revolution** to double the food grain production and triple the farmers' income. The farmers would be issued advisories on various agriculture operations in addition to integrating and synchronizing the efforts of various stakeholders in the field of agriculture and also to provide linkage to the post harvest processing and marketing, to make the agriculture operation sustainable. This concept will be implemented on AGRISNET platform by field functionaries using **Hand Held Device called Personal Digital Assistants** enabled with **GPRS, GIS & GPS** and **Pico Mini projector.**

4.6.2.2. Farmer Database Management System through Mobile Application:

To expeditiously collect baseline information of all farm families of Tamil Nadu, a mobile application has been designed. The baseline information includes personal

details, bank details, affiliation to various groups, land holdings, crops cultivated, source of irrigation, net income, plantation crops, farm animals, farm machineries, farm energy sources, micro irrigation facilities, apiary, fishery, sericulture and service requirement. This will facilitate agriculture and allied departments in planning process for farm level interventions apart from helping farmers to undertake informed scientific cultivation. Baseline information will be collected by the extension officials of Agriculture Department through a mobile application developed by IITM-RTBI, Chennai. The data will be integrated into AGRISNET portal. This module would help to collect baseline data of a large section of farmers in a shorter time.

4.6.2.3. Voice Enabled Data Updation Module

To ensure server enabled timely information dissemination and farmer's data updation, an interactive voice response system through mobile has been developed on a collaborative mode with IITM-RTBI, Chennai. This will facilitate the farmers in updating their information in the web portal through voice interface. Further they will be able to get the technological information automatically through servers for any queries.

4.6.2.4. Scheme Benefits Tracking System:

The information of scheme benefits will be integrated to the individual farmer identity and the detailed list of benefits and photographs matched with time and coordinates showing disbursement of said benefits will be maintained in the AGRISNET portal. For capital assets, provision is there for periodical monitoring and uploading photograph depicting the status of the asset. For technology oriented benefits, the various stages of implementation along with its performance will be captured as image and uploaded. This would help timely distribution and proper use

of scheme benefits to farmers with transparency in scheme implementation.

4.6.3. Integrated Farming System

Integration of various agricultural and allied activities viz., cropping, animal husbandry, fishery, agro forestry, etc., not only supplements the income of farmers but also helps in increasing the family labour employment. The Integrated Farming System introduces a change in the farming techniques for maximum production in the cropping pattern by optimizing the utilization of resources, ultimately improving the economic status of the farmers. The Government has planned to take up activities such as collection of basic data on allied enterprises, categorizing the villages based on the micro climatic conditions, development of crop plan (both Agriculture & Horticulture) in relation to soil type, irrigation and rainfall and integrating with other enterprises like dairy, poultry etc., for adoption to gain higher net income, facilitation for availability of inputs, credit, insurance, farm machineries besides technologies, periodical monitoring by extension functionaries for corrective measures in scheme implementation, providing market intelligence and instant expert advice on farm related issues. It is proposed to establish suitable models of Integrated farming villages during 2012-13.

4.6.4. Farmer's Integrated Hand Book

The Department of Agriculture has envisaged farm level interventions through “**Farm level planning**” to ensure sustainable agricultural production. As a first step, the Department of Agriculture has initiated collection of farmers database through AGRISNET, an IT enabled extension activity to take up all extension, input and scheme activities with agility. As a part of this, details of

farmers collected are entered in **Farmers Integrated Hand Book**, a foolproof record containing the personal information of farmers, soil test results, nutrient recommendation and scheme benefits valid for 3 years. This is being distributed to farmers to help them in applying adequate fertilizers and also to keep a record of farm wise, season wise production and productivity. Farmers can draw their cropping programme, input requirement and avail scheme benefits with the help of this Hand Book.

4.6.5. Farm mechanization

Migration of agricultural labourers to non-farm activities has resulted in acute shortage of man power affecting timely farm operations. Hence, there is an urgent need to bring suitable Farm Mechanisation in a massive way to sustain agricultural activities in Tamil Nadu. The Government which is considerate towards the farming community will support for farm mechanization on a group based approach during 2012-13.

4.6.6. Online Farm machinery booking

To alleviate problem due to shortage of farm labour, the Government has resolved to adopt three pronged approach, wherein machinery will be purchased to make it available to farmers on custom hiring basis besides, providing subsidy to farmers, farmers' groups and self help groups to acquire agri-machinery and equipments. The Government will form farmers'/ farm workers' groups trained in agricultural operations for seed to seed support services. Farmers largely depend on farm machineries which cannot be purchased by small and marginal farmers. As a support to small and marginal farmers, the Agricultural Engineering Department provides farm machineries on rental basis at a low tariff than the private outlets. Presently, they approach in person for booking which drains time and money. So the

Department of Agriculture has planned to provide an online booking system of farm machineries through the existing AGRISNET web portal. With this system, the farmer can plan well ahead about the requirement of farm machinery and book it online, through telephone and can make payment online through a payment gateway. This would help the farmers from time and money exhaustion.

4.7. Crop Diversification

The Government which is very much considerate towards the farming community has intended to promote Crop diversification, as it gives a wider choice in the production of variety of crops in a given area so as to expand production related activities on various crops and also to lessen risk. The crop shift also takes place due to government policies, thrust on some crops over a given time, distinct soil conditions, market infrastructure development, price related supports, higher profitability and stability in production. The Government will take up intensive measures to support Crop Diversification system in terms of Research and Development, extension support, Marketing, Infrastructure, stable price policy for diversified crops and proper risk mitigation mechanism without compromising food and nutritional security.

4.8. Strengthening Research and Extension Services to all Farm Families in Tamil Nadu.

A close interaction between farmers, extension workers and researchers is needed for diagnosing problems together and working out location specific recommendations at field level emphasizing participatory education rather than prescription. Government will focus on effective dissemination of technologies from lab to land through efficient delivery mechanism, preparation of Strategic

Research and Extension Plans (SREP) through participatory Rural Appraisal to encourage bottom up planning and integrate all these three stakeholders for empowering the farming community.

4.9. Capacity Building for Excellence.

Training and acquisition of skills are the integral components of a technology transfer system as innovative technologies to combat the challenges faced in day to day agriculture are emerging steadily. Hence Government will focus on

- Assessing farmers' needs and skills.
- Distinguishing different dimensions of capacity building such as awareness, knowledge and skills and using appropriate channels and methods for each.
- Different kinds of technologies and advice required by different categories/groups.
- Adoption of suitable transfer mechanism such as individual contact, mass media as per choice during different phases of awareness.
- Trial and adoption of new skills and technologies.
- Use of Information Technology for improving the quality and accelerating the transfer and exchange of information.
- Organizing training programmes on system based and sustainable technologies such as Integrated Pest Management (IPM) and Integrated Nutrient Management(INM).
- Organizing specific training on agro processing and agriculture marketing.

All the above cannot be fulfilled unless and until there is adequate infrastructure to train the farmers and extension personnel. Hence, the Government would establish State- of-the- art training institutions at various places and also strengthen the existing farmers training centres and other training institutes.

5. Schemes

Agriculture serves as a main plank for providing food and nutritional security to the growing population. The Government is planning and implementing multitude of schemes for the welfare of the farming community. The objectives are to mainly double the production and productivity of agricultural crops, triple the income of the farmers, satiate the requirements of industries and remove regional imbalances in farm productivity to ensure farm development by adopting front end advanced technologies, farm based interventions and convergence of schemes.

The Government is implementing various crop oriented subsidy schemes from its own fund resources besides various Centre-State Shared Schemes, Centrally Sponsored Schemes, Externally Aided Projects for the upliftment of farming community.

5.1. State Sponsored Schemes

The Government which is very much considerate towards the farmers has set itself to bring in desirable changes for a sustainable agriculture and improve the livelihood of the farmers on a sustained basis. Hence the Government is focusing on criticalities in farming such as soil health management, procurement and distribution of quality seeds, augmenting the production of pulses, cotton and sugarcane, plant protection, crop insurance, crop yield competition, etc.,

5.1.1. Soil survey and land use organization

Detailed soil survey is done to know the status and suitability of soil to raise various crops, thereby encouraging the farmers to grow more suitable crops adopting improved scientific technologies to attain higher productivity in his farm. The detailed soil survey is conducted through four Soil Survey Units at Coimbatore, Thanjavur, Vellore and Tirunelveli and inventory on soil resources including nature of soils is prepared. The characteristics of the soil are probed through field studies, laboratory analysis and classified according to internationally recognized system. The extent of soil is mapped on standard topographic base maps and finally interpreted for various uses. During 2011-12, soil survey has been completed in 0.52 L.ha. The detailed soil survey will be conducted in an area of 0.99 L.ha. during 2012-13.

5.1.2. Soil Health

Soil nutrient status of Tamil Nadu has deteriorated and organic matter content has got depleted from 1.26% in 1980s to 0.68% in 2010-11 due to intensive cultivation and mono cropping. To rejuvenate soil health and improve fertility status, it is planned to analyze the nutrient status of soil samples of individual farm holdings and identify the extent of problematic soils. This will help in judicious use of fertilizers and recommend appropriate soil ameliorants. The recommendations will be recorded in "**Farmer Integrated Hand Book**" and all the farmers would be covered in next 3 years period. The Central Control Laboratory located at Kudumianmalai, is the Apex Organization which provides technical competence through training to the laboratory personnel and ensures the precision and accuracy of analysis in the laboratories. Computers with internet facilities have been provided to all the 30 Soil Testing Laboratories

functioning in the state to upload details of soil samples analyzed and the database is managed through **AGRISNET**. Further, an amount of ₹390 lakhs has been sanctioned towards the purchase of 13 Mobile Soil testing vans for 13 Mobile Soil Testing Laboratories.

During 2011-12, a sum of ₹400 lakhs has been sanctioned towards the issue of 21 lakh Farmers Integrated hand book. 9.54 lakh soil samples have been collected and 7.79 lakh numbers analyzed. During 2012-13, it has been programmed to distribute 40.45 lakh Farmers Integrated hand book.

5.1.3. Organic Farming

The Government is resorting to various methods for maintaining the health and fertility status of the soil through balanced application of inorganic and organic fertilizers. As inorganic fertilizers cannot be entirely dispensed with, the Government is promoting Organic Farming in a massive way to restore the soil health from the residual effects of inorganic fertilizers with an eye on environmental safety. Schemes such as composting of farm wastes with *Pleurotus*, Vermicomposting of farm wastes, production and distribution of Bio-Fertilizers and procurement and distribution of green manure seeds are implemented.

- Every year kits containing 1 Kg of *Pleurotus*, 5 Kg of Urea with pamphlet are distributed to the farmers at free of cost to conduct demonstrations to produce **compost from farm waste using *Pleurotus***. During 2011-12, 4662 pleurotus kits were distributed to the farmers at a cost of ₹6.50 lakhs. During 2012-13, 5000 kits will be prepared at a cost of ₹7 lakhs and distributed to the farmers.

- The scheme viz., **Vermicomposting of agricultural waste will be implemented** to encourage the farmers to produce the required organic manure on their own lands. During 2011-12, 300 demonstrations and trainings were conducted at a cost of ₹11.55 lakhs. During 2012-13, 300 demonstrations and training to benefit 15000 farmers will be conducted at a cost of ₹11.55 lakhs.
- **Bio-fertilizer**, an important component of Integrated Nutrient Management, is an eco friendly and cost effective input produced in 15 Bio-Fertilizer Production Units functioning with an annual production capacity of 3850 MT (192.50 lakh packets of 200 gram each). 83 lakh packets were distributed during 2011-12. Three strains viz., *Azospirillum*, *Rhizobium* and *Phosphobacteria* are produced and distributed at a cost of ₹6/-per packet and tested for quality through Bio-fertilizer Quality Control Laboratory functioning at Tiruchirapalli. It is programmed to produce and supply 3850 MT during 2012-13.
- **Liquid Bio-fertilizers** which have advantages such as longer shelf life of 12 to 24 months, free of contamination, higher microbial population, cost effective and easy to use will be promoted by the Government to rejuvenate the soil health.
- **Farm Yard Manure & Tank Silt** which improve soil structure, water holding capacity, drainage and availability of nutrients to improve the soil health in a long run at cheaper cost will be popularized for increasing the organic matter content of the soil.

- Every year, it has been programmed to produce 525 MT of **Blue Green Algae** and 500 MT of **Azolla** that helps in fixing atmospheric Nitrogen and make it available to the rice crop. During 2011-12, 511 MT of Azolla were produced and distributed to the farmers. This scheme will be continued during 2012-13 also.
- Annually 250 MT of green manure seeds are procured and distributed at a total cost of ₹ 50 lakhs with 25% subsidy to encourage the usage of Green Manures. **Green manure crops** like Sunnhemp, Daincha, Kolinji and *Sesbania* are capable of fixing atmospheric nitrogen and improve the soil health. Daincha and Kolinji are also capable of removing salinity and acidity of the soil. During 2011-12, 154 MT of green manure seeds were procured and distributed to the farmers at a total cost of ₹52.36 lakhs with 25% subsidy. This scheme will be implemented in a larger extent during 2012-13. Further, Government will implement an integrated approach wherein soil fertility will be improved by encouraging application of Green Manures and Farm Compost by upscaling the distribution of Green Manure Seeds and will also enable the farmers to incorporate green manure crops *in-situ* at 50% subsidy besides promoting application of farm compost by establishing vermicompost units.

5.1.4. Macro Nutrients

Inorganic fertilizers play a pivotal role in increasing the productivity of crops by supplying essential macro and micro elements. The Department of Agriculture is taking necessary measures to maintain soil fertility for which recommendations are given based on soil testing. As the indiscriminate use of inorganic fertilizers without any base

ultimately increases the cost of cultivation, the department is formulating plans with seasonwise, cropwise, farmwise fertilizer requirement every year. The Government is also taking concerted efforts to get allocation of fertilizers from Government of India and a supply plan is prepared to ensure adequate availability of fertilizers in time through fertilizer firms.

Fertilizer distribution during 2011-12 and requirement for 2012-13 are furnished below:-

(L.MT)

Fertilizer	Distribution 2011-12	Requirement 2012-13
Urea	10.39	11.91
MOP	3.82	5.09
DAP	4.23	5.67
Complex	7.84	6.48

The Government swiftly acted at the time of fertilizer crisis that had occurred in the recent times and deftly managed the situation by ensuring adequate stock, besides sanctioning **increased** interest free advance of ₹150 crores to TANFED for procurement and uninterrupted supply of fertilizers especially DAP. The Government will continue to purchase and distribute DAP through TANFED during 2012-13 also. Besides it has also been planned to purchase urea and MOP through TANFED / Government agencies and maintain Buffer stock to meet the demand without any shortfall.

Consequent to introduction of Nutrient Based Subsidy (NBS) with effect from 1.4.2010 by Government of India with 'fixed subsidy-variable retail price regime, chemical fertilizers prices except Urea have substantially increased. **To reduce the burden of farmers, the Government has exempted 4% VAT which is first time across the country.**

5.1.4.1. Quality Control

The Government is keen on ensuring the quality of the inputs being supplied to farmers and is taking concrete steps to stop the sale of sub-standard inputs. The Government is strictly enforcing Fertilizer Control Order, 1985 to ensure distribution of quality fertilizers and legal action is taken against the distributors who sell non-standard fertilizers. 14 notified Fertilizer Control Laboratories are functioning in the State with an annual analyzing capacity of 17,500 samples. During 2011-12, 17,398 samples were tested of which 534 samples were found non-standard and suitable departmental and legal action have been taken up against the defaulters. During 2012-13, it is programmed to analyze 17,500 fertilizer samples, 600 Bio-fertilizer samples and 1800 organic manure samples.

5.1.5. Micro Nutrients

Micro nutrients are essential for plant growth and any deficiency will have an impact on the production and productivity. The Government is analyzing the Micro Nutrient deficiency in the soil using Atomic Absorption Spectro Photometer installed in 19 Soil Testing Laboratories and 9 Mobile Soil Testing Laboratories. During 2011-12, additionally 11 Atomic Absorption Spectro Photometers are being installed in the remaining 11 Soil Testing Laboratories. Annually 1400 MT of 14 types of notified Micro Nutrient Mixtures are produced at Micro Nutrient Mixture Production Centre, Kudumianmalai, tested for quality at 6 Fertilizer Control Laboratories and distributed to the farmers through the Agricultural Extension Centres. During 2011-12, 1135 MT of Micronutrient mixtures were produced and distributed. During 2011-12, an amount of ₹ 60 lakhs was sanctioned for modernization of Micro Nutrient Mixture Unit besides ₹ 130 lakhs for the construction of MN mixture

godown. It is programmed to produce and distribute 1400 MT of Micro Nutrient Mixtures during 2012-13.

5.1.6. Seeds

Seed is the prime input for increasing the productivity of crops. High yielding varieties released by research institutes such as Tamil Nadu Agricultural University, Indian Council of Agricultural Research, other State Agricultural Universities and ICRISAT will be recommended specific to the region and seasons. The seeds will be made available to the farmers at right time to steer agriculture to a new height. The Government is in the process of evolving suitable cropping system specific to individual farm, soil type and irrigation status based on farm level interventions and a comprehensive seed is being formulated to meet out the seed demand.

In addition, the Government is taking initiatives to replace the existing obsolete and old ruling varieties with newly released and high yielding varieties, sensitize the farmers on production and usage of certified seeds, encourage quality seed production and seed processing activities on Public Private Partnership mode involving farmers, women self help groups, TANWABE groups, private entrepreneurs and NGOs, upgrade the infrastructure facilities for seed production, scientific processing and storage, raise seed farms on a cluster / village concept approach and promote community farming to enable the farmers to produce their own seeds specific to their region.

The Seed Replacement Rate is 33% for self pollinated crops such as paddy, ragi, pulses and groundnut, 50% for cross pollinated crops such as cholam, cumbu and cotton and 100% for hybrids. The Government to improve and strengthen the seed delivery mechanism has

conceptualized to identify and declare potential seed production areas as **Seed Valley** and establish **Village Seed Bank** to ensure availability of good quality seeds for enhancing productivity and help in generating income to improve the livelihood of the community members.

During 2012-13, it is programmed to distribute 18,700 MT of paddy seeds, 470 MT of millet seeds, 4,950 MT of pulses seeds, 6,500 MT of oilseeds and 100 MT of cotton seeds through the Agricultural Extension Centres. It has been proposed to entrust 50% of the certified seed production to Tamil Nadu Agricultural University in a phased manner. The seeds produced in the seed farms will be processed in the 16 major, 2 medium and 63 mini Seed Processing Units with an annual capacity of 29,600 MT. In order to strengthen the seed distribution, the Government is also encouraging private seed agencies.

The details of quality seed distribution and the Seed Replacement Rate (SRR) programmed for 2012-13 are as follows:-

Crop	Seed Distribution Plan for 2012-2013 (in Metric Tonnes)			
	Total Annual Requirement	Department Certified Seeds	Private Certified / Truthfully labelled Seeds	SRR
Paddy	110000	18700	57250	69
Millets	12150	470	6240	55
Pulses	20800	4950	680	22
Oilseeds	80610	6500	5700	15
Cotton	550	100	450	100

5.1.7. Plant Protection

5.1.7.1. Pest / Disease Surveillance

The increased use of pesticides has disturbing consequences on the crop ecosystem, particularly due to the development of resistance, resurgence of crop pests and decline in population of the natural enemies. Tamil Nadu is focusing on increased adoption of cost effective and eco-friendly cultivation practices. Hence, the Government has proposed to step up investment in research and technology and take up measures to use Bio-pesticides that are more effective in managing crops in an environmentally protective manner.

The occurrence of pest and diseases is intensively monitored by conducting fixed plot surveys and roving survey at weekly intervals and daily basis respectively besides forewarning on pest and diseases outbreak and necessary control measures are recommended to the farmers through radio, television, pamphlets, campaigns, etc., Seed treatment is also popularized among farmers to prevent the incidence of seed borne diseases at the early stages of the crop.

5.1.7.2. Integrated Pest Management

Integrated Pest Management is a practice wherein the pests are controlled by integrating physical, agronomical, chemical and biological methods to prevent the production loss by keeping the pest and diseases below the Economic Threshold Level (ETL). Integrated Pest Management technologies are promoted through Farmers' Field School besides sensitizing the farmers on pest and diseases management from seed to seed. Effective implementation of this programme has helped to reduce the consumption of pesticides from 10926 MT of technical grade in 1984-85 to 2261 MT in 2011-12, thus preventing pest

resurgence and reducing the ill effects of pesticide residues in crops and soil. This scheme will be continued during 2012-2013.

5.1.7.3. Production of Bio Control agents in Bio Control Labs and Integrated Pest Management Centres

The concept of organic farming is gaining momentum among farmers which has increased the usage of biocides and bio-control agents. To meet the demand, Government has established 10 Bio-control labs and 2 Integrated Pest Management Centres for production and distribution of Bio-control agents to the farmers at subsidized cost through Agriculture Extension Centres.

Bio-control agents	Production centres (Nos.)	Pests / Diseases controlled	Area (Ha.)	
			Achmt. 2011-12	Programme for 2012-13
<i>Trichogramma chilonis</i> (egg parasitoid)	21	Sugarcane Internode borer	11000	11000
Bethylid, Braconid and Eulophid parasites	20	Coconut Black headed caterpillar	10500	10500
Green Muscardine fungus	2	Coconut Rhinoceros beetle	45000 vials	45000 vials
Nuclear Polyhedrosis Virus	4	Groundnut Red hairy caterpillar, Prodenia and cotton boll worm	4560	4560
<i>Pseudomonas, Trichoderma viridi</i>	12	Diseases in cotton, pulses and paddy	10000	10000

5.1.7.4. Pesticide Testing Laboratories

Quality Plant Protection Chemicals are manufactured through 147 Pesticide Manufacturing Units and distributed to the farmers through 13,321 private sale outlets. Insecticide Act, 1968 and Insecticide Rules, 1971 are enforced to ensure supply of quality plant protection chemicals to the farmers. The pesticide samples drawn from the manufacturing units and private sale outlets are analyzed in the 15 notified Pesticide Testing Laboratories functioning at Kancheepuram, Cuddalore, Salem, Coimbatore, Erode, Thanjavur, Trichy, Madurai, Thoothukudi, Vellore, Dharmapuri, Nagapattinam, Theni, Sivagangai and Tirunelveli districts with a total annual analyzing capacity of 21850 samples. During 2011-12, 19,626 samples were analysed.

It is programmed to analyze 21850 pesticide samples during 2012-13.

5.1.8. Extension in Augmenting Agriculture

Effectiveness of the ongoing extension services and delivery mechanism include recent innovations and making them more responsive and accountable to the farmers. Information and knowledge are the keys to future agricultural growth and growth engines of an extension system. The prime responsibility of an extension service is to disseminate up-to-date and reliable information about farming methods, innovative technologies, availability of quality inputs, economic and profitable agriculture, etc., and ensure adoption in the farmers' fields. Extension is a platform through which initiatives for doubling the agricultural productivity and farmer's income are resorted to. Government has taken the following initiatives to strengthen the extension services:

- ❖ **213 new vehicles - Mobility of Extension staff at Block level:** The Government has provided 213 new vehicles to the extension officers at a cost of ₹1387 lakhs for monitoring the implementation of various crop oriented welfare schemes.
- ❖ **Farmers Guide Booklet - Farmers' Ready Reckoner Hand Book and Pocket Book**

To empower farmers for better understanding of technical information on cultivation, schemes implemented by the Government and agricultural related information, **Farmers Guide Booklet** has been prepared by all the Departments in Agriculture in two levels, one at **State level** for the use of officials of the Department and another at **district level** for the use of farmers. These books have been prepared with due care to supply needy information to farmers for their use as ready reckoner. These books contain comprehensive crop specific information on soil, water and pest & disease management, improved varieties, technologies, success stories of farmers, contact address of nearby extension officials, research institutes, input dealers, machinery suppliers, market agencies, insurance package, scheme benefits etc. Eight types of **Farmers Guide Booklet** have been prepared as detailed below:

- Food grains covering rice, millets and pulses
- Commercial crops viz., sugarcane, cotton and oilseeds
- Annual horticulture crops
- Perennial horticulture crops
- Soil & water conservation and farm mechanization

- Agricultural Marketing
 - Technologies of TNAU
 - Watershed programmes
- ❖ **Farmers Hub** - The Government is establishing Farmers' Hub in 10 districts viz., Coimbatore, Dindigul, Erode, Kancheepuram, Madurai, Ramanathapuram, Thanjavur, Tiruchirappalli, Thoothukudi and Virudhunagar at a cost of ₹1497 lakhs and these Farmers' Hub will act as a platform for information dissemination between farmers, farmers groups, extension functionaries and also as a centre for solving all field oriented problems related to agriculture and sister departments at one spot.
- ❖ **Personal Digital Assistants (PDA)** are being distributed to collect detailed data base on field, inform availability of inputs such as seeds, fertilizers, pesticides, bio-pesticides etc., record biometric observations of crops at critical stages to arrive estimated yield, pest and disease outbreak, improved cultivation technologies, individual based insurance settlement and linkages for marketing of harvested crops. During 2011-12, PDAs are distributed to 227 extension functionaries belonging to 20 blocks of Vellore and 11 blocks of Virudhunagar districts at a cost of ₹ 34.05 lakhs. During 2012-13, it is programmed to distribute 430 Nos. of PDAs to extension functionaries of Trichy, Erode, Thiruvarur and Coimbatore districts at a cost of ₹86 lakhs.
- ❖ **Touch Screen Kiosks** - To narrow down the yield gap and to facilitate the farmers for easy access to information like weather, input availability, farm based interventions, market intelligence and scheme

benefits besides knowing details of their own farm plan and inputs requirement. Touch Screen Kiosks will be established at block and sub block level in 125 places of Trichy, Erode, Thiruvarur and Coimbatore districts at a cost of ₹ 81.25 lakhs.

5.1.8.1. Farmers Training Centre

The prime responsibility of the department is to disseminate and ensure perfect adoption of innovative technologies by the farmers. Village based training, Convenors training, method demonstration and sensitization training are conducted through 22 Farmers Training Centres functioning in the State. These centres impart training on management practices and technologies such as quality seed production, crop diversification, Integrated Pest and Disease Management, Integrated Nutrient Management, System of Rice Intensification, Improved Pulses Production Technologies, Sustainable Sugarcane Initiatives, Precision Farming, Micro Irrigation, value addition etc.,

5.1.8.2. Water Management Training Centre

The Water Management Training Centre at Vinayagapuram, Madurai district functioning from 1985, imparts integrated training programmes to field functionaries and farmers on irrigation technologies to increase the crop production and irrigation efficiency.

5.1.8.3. State Agricultural Extension Management Institute (STAMIN)

State Agricultural Extension Management Institute (STAMIN) at Kudumianmalai, Pudukottai District, is a State level apex agricultural extension training institute which is imparting training to the Agricultural Extension officers and farmers every year on various crop production technologies

and broad based extension system. It is one of the premier institutes in Tamil Nadu which is functioning from 1975. The technical competence and managerial ability of the officers are enriched through this institute. The details of training to be given in 2012-2013 are furnished below.

Sl. No	Details of training	No. of officers to be trained
1	Office Management training	82
2	Computer training	90
3	Induction training to AAOs	600
	Total	772
	Finance (₹in lakhs)	9.07

It has been decided to establish a new State Agricultural Management and Extension Training Institute (SAMETI) in the premises of STAMIN, Kudumiyamalai, Pudukottai district.

5.1.9.Crop Yield Competition

With an objective to motivate the farmers to adopt best cultivation practices and to obtain highest productivity and production in crops such as paddy, groundnut, cholam, cumbu, maize, greengram and blackgram, crop yield competitions at State and District levels are conducted every year.

An enrollment fee of ₹100/- for paddy and groundnut and ₹50/- for other crops for State Level entry and ₹50/- for paddy and groundnut and ₹25/- for other crops for district level entry is collected. The following prize amount is awarded to the farmers who obtain highest productivity at State and District levels.

(in ₹)

Crop	State Level		District Level	
	1 st Prize	2 nd Prize	1 st Prize	2 nd Prize
Paddy and Groundnut	25,000	15,000	15,000	10,000
Other crops	15,000	10,000	10,000	5,000

The scheme will be continued during 2012-13.

As a special gesture, a cash prize of ₹5 lakhs and medal worth of ₹3,500/- will be given by Hon'ble Chief Minister on the Republic Day function to the farmer who obtains highest yield at state level under System of Rice Intensification (SRI) for which the farmer has to enroll under SRI Crop Yield Competition by paying a registration fee of ₹150/-

5.1.10.Special Initiatives by the Government

The Government which had set itself an ambitious target of achieving 115 L.MT of food grain production and improving the productivity of other crops like sugarcane, cotton and oilseeds during 2011-12 launched series of initiatives as follows:

- ❖ Adoption of SRI as a whole village concept in 1880 villages covering an area of 1.60 L.ha besides setting a target of 9.50 L.ha throughout the state. So far an extent of 1.75 L.ha in 1880 villages have been brought under SRI. As a whole 10.01 L.ha have been covered under SRI.

- ❖ To bridge the production - demand gap in pulses, Improved Pulses Production Technologies with more focus on application of **Pulse Wonder** have been advocated in **1695 No.of Pulses villages**. For the first time, the State Government sanctioned a sum of ₹1048 lakhs towards **Micro Irrigation exclusively for pulses** in an area of 5000 hectares and of which a sum of ₹1025 lakhs was utilized.
- ❖ Without compromising food security, **Sustainable Sugarcane Initiatives**, a Comprehensive Production technology for increasing the productivity of sugarcane was popularized in 3000 Ha. and Micro Irrigation in an area of 7440 Ha. Critical inputs such as Water soluble fertilizers and TNAU Sugarcane booster were provided to farmers at 50% subsidy (limited to ₹25,000/Ha) under Sustainable Sugarcane Initiatives besides, training 4000 farmers at a total outlay of ₹1293 lakhs. A sum of ₹1235 lakhs was utilized for this purpose.

5.2. Centre – State Shared Schemes

5.2.1. Integrated Scheme for Oilseeds, Pulses, Oilpalm and Maize (ISOPOM)

Integrated Scheme for Oilseeds, Pulses, Oilpalm and Maize (ISOPOM) is a centre - state shared scheme implemented from 2004-05 onwards wherein the subsidy is borne by the Government of India and the State on 75:25 basis. The objective of the scheme is to increase the productivity of oilseeds, pulses, oilpalm and maize for which region specific strategies are formulated. From 2010-11, the scheme for pulses was integrated with NFSM - Pulses

and ISOPOM scheme is implemented only for oilseeds, oilpalm and maize.

5.2.1.1. Oilseeds

Tamil Nadu ranks first in the productivity of oilseeds in the country. The spiraling prices of oilseeds due to increased consumption have caused a greater concern. Hence to increase the productivity of oilseed crops and to meet the demand, activities like production of foundation and certified seeds, distribution of certified seeds, demonstration in groundnut, gingelly, sunflower crops, demonstration on IPM, distribution of gypsum, bio-fertilizers, weedicides, Nuclear Polyhedrosis Virus, hand and power operated sprayers and pipelines to supply water from source to field are carried out besides training farmers on latest technologies. A special component viz., combined nutrient spray exclusively for groundnut is also implemented.

5.2.1.2. Oilpalm

Oilpalm is a largest edible oil producing crop and fetches high income to the farmers. This scheme is implemented in 11 districts and activities such as maintenance subsidy, IPM, wire mesh to avoid rat menace, training to officers and farmers are carried out to increase the production of Oilpalm. M/s.Cauvery Oil Palm Ltd., (Tiruchirapalli, Thanjavur, Tiruvarur, Nagapattinam, Karur, Perambalur, Cuddalore, Villupuram) M/s. Godrej Agrovet Ltd., (Tirunelveli), M/s. Vaidegi Properties Private Ltd., (Vellore) and M/s. Ruchi Soya Industries Ltd., (Theni) have signed Memorandum of Understanding with the Government to expand the area under Oilpalm, set up extraction units and also generate employment opportunities.

5.2.1.3. Maize

Maize is a highly remunerative crop which leads in paving way for shift in cropping pattern due to change in consumption pattern and its demand for poultry and animal feed. This scheme is implemented with an objective to increase the productivity of maize for which components like production and distribution of certified seeds, demonstration, Integrated Pest Management, training to farmers and distribution of pipelines to carry water from the source are being implemented.

An amount of ₹1477.740 lakhs has been spent towards the implementation of ISOPOM during 2011-12. The scheme will be continued during 2012-13 also.

(₹ in lakhs)

Crop	2011-12		2012-13
	Approved Outlay	Achievement	Programme
Oilseeds	1615.030	1230.869	1684.620
Oilpalm	160.755	150.780	283.490
Maize	96.312	96.091	100.530
Total	1872.097	1477.740	2068.640

5.2.2. Technology Mission on Cotton – Mini Mission-II

Cotton is the most important raw material for the textile industry and one of the important cash crops which ensure stable income to the growers. With an objective to increase the production and productivity of cotton, Technology Mission on Cotton is being implemented from the year 2000-01. The Centre and state Governments share the financial assistance extended on 75:25 basis. This scheme is implemented in all the districts of Tamil Nadu.

The scheme was implemented with an allocation of ₹61.50 lakhs during 2011-12. Subsidy is extended for production & distribution of certified seeds and bio agents besides farmers training through farmers field schools expending an amount of ₹ 59.83 lakhs. The components under this scheme are to be proposed under National Agricultural Development Programme during 2012- 13 at an outlay of ₹319.50 lakhs.

5.2.3. Macro Management of Agriculture

Macro Management of Agriculture scheme is being implemented since 2000 and the financial assistance is shared between Government of India and State Governments in the ratio of 90:10. This scheme is implemented with an aim to increase the crop yield and improve the economic status of farmers by formulating schemes based on the States' needs.

5.2.3.1. Cereals Development Programme

The objective of this programme is to increase the production and productivity of rice and it is implemented in all the districts except Chennai, Nilgiris and NFSM - Rice operating districts viz., Pudukottai, Tiruvarur, Nagapattinam, Ramanathapuram and Sivagangai. Under this scheme, quality certified seeds are distributed. This scheme was implemented during 2011-2012 and an amount of ₹563.755 lakhs has been spent against an allocation of ₹657.50 lakhs.

This scheme will be continued during 2012-13 also.

5.2.4. Agricultural Technology Management Agency (ATMA)

Extension Reforms Scheme is being implemented since 2005-06 and now it is in operation in all the districts except The Nilgiris and Chennai through Agricultural Technology Management Agency (ATMA) covering 381 Blocks by Tamil Nadu Watershed Development Agency (TAWDEVA) which is the State Nodal agency. The funding pattern is 90:10 by Government of India and State Government respectively.

This scheme aims to decentralize the decision making to the block level, to increase the farmers' participation in programme planning and resource allocation and to increase the accountability of stakeholders by converging the programmes of all line departments. It is operating on gap filling mode by formulating Strategic Research and Extension Plan (SREP) and Annual Work Plans. The other objectives of the scheme are encouraging Public Private Extension Services, ensuring an integrated, broad-based extension delivery mechanism consistent with farming system approach, adopting group approach to extension and addressing gender concerns by mobilizing farm women into groups and providing training to them.

At district level, ATMA Governing Board (GB) under the chairmanship of district Collector provides overall policy direction and ATMA Management Committee (MC) headed by Joint Director of Agriculture as Project Director will execute the implementation of the scheme. The District Farmers Advisory Committee provides farmer's feedback for district level planning and implementation.

At block level, two committees viz., Block Technology Team (BTT), a team comprising of block level officers of Agriculture and all line departments and Block

Farmers Advisory Committee (BFAC), a group exclusively of farmers of the block formulate and implement the scheme.

ATMA is fulfilling the needs of training, demonstration, mobilizing Farmers' Interest Group through capacity building and providing revolving fund for entrepreneurial activities, inter-state and inter- district exposure visits besides giving awards to best performing farmer and farmer groups at block, district and state level. An amount of ₹2361.199 lakhs was spent against an allocation of ₹2763.527 lakhs for the above activities during 2011-2012.

To strengthen the extension activities at state, district and block level and to improve extension outreach right down to the village level, the Government has temporarily appointed 1300 Block Technology Managers, Subject Matter Specialists, supporting staff and 8109 Farmer Friends (one progressive farmer as Farmer Friend (FF) at village level for every two revenue villages) on contract basis at an outlay of ₹1656.62 lakhs. The Farmer Friends will act as a liaison partner between farmers and extension staff for speedy and timely implementation of schemes at micro level.

This scheme will be continued during 2012-13 in all the districts (including all the blocks of The Nilgiris district) except Chennai besides promoting mass based agricultural extension system in the state.

5.2.5. Coconut Development Board Assisted Schemes

Tamil Nadu ranks first, second and third in coconut cultivation in terms of productivity, production and area respectively at National level. The Government is taking necessary measures to increase the productivity of coconut from the present level in coordination with Coconut Development Board. The schemes of Coconut Development

Board aim at improving the productivity of coconut through area expansion and adoption of scientific technologies to sustain coconut farming. Under this scheme, Quality 'Tall x Dwarf ' and 'Dwarf x Tall' coconut seedlings are produced in the Navlock Coconut Nursery, Vellore district and distributed to the farmers besides carrying out activities such as strengthening of Regional Coconut Nurseries and conducting demonstrations to popularize scientific management techniques to increase coconut productivity.

The financial assistance for the above activities are equally shared by both Central and State Government except for conduct of demonstrations, which is 100% funded by Coconut Development Board. Every year, around 3.50 lakh coconut seedlings are distributed at subsidized cost.

During 2011-12, an amount of ₹352.935 lakhs was spent towards the distribution of coconut seedlings, strengthening of coconut nurseries and laying out of demonstration plots against an allocation of ₹377.325 lakhs. Further activities related to strengthening of Coconut development in Tamil Nadu will be taken up with active partnership of farmers in production and distribution during 2012-13.

5.2.6.Agricultural Insurance

Implementation of Crop Insurance Schemes in Tamil Nadu portrays the exemplary efforts taken by the State Government and Department of Agriculture by its resound success among the farmers. The State Government is taking strenuous efforts to fine tune the Crop Insurance Schemes by introducing interim compensation to insured farmers, reducing the insurance unit area to revenue village level, uniform seasonality discipline, on account payment, timely payment of claims, etc., which will definitely motivate

the farmers to take up risks in agriculture and stabilize the income of the farmers at the time of distress. The Crop Insurance Schemes which are in vogue are as follows:-

5.2.6.1.National Agricultural Insurance Scheme

National Agricultural Insurance Scheme with the objectives to provide insurance coverage to the farmers for the notified crops, provide financial support to the farmers in the event of failure of crops as a result of natural calamities, encourage the farmers to adopt progressive farming practices and high value inputs and help them to stabilize their farm income, particularly in disaster years is implemented in Tamilnadu from Kharif 2000 onwards. Paddy, millets, pulses, oilseeds, cotton, sugarcane, annual / commercial crops are insured under the scheme. The scheme is operated in notified areas (block/ firka level) for notified crops. All loanee farmers growing notified crops are enrolled compulsorily while non-loanee farmers are enrolled on voluntary basis.

The present premium subsidy pattern is as follows:-
(Percentage)

Details of Beneficiaries		Govt. of India Subsidy	Govt. of Tamil Nadu subsidy	Total subsidy
Loanee Farmers	Small & Marginal Farmers	5	45	50
	Other Farmers	--	50	50
Non-Loanee Farmers	Small & Marginal Farmers	5	50	55
	Other Farmers	--	50	50

During 2011-12, a sum of ₹2769.52 lakhs was extended as premium subsidy against an allocation of ₹2850 lakhs by the State Government towards enrollment of 5.94 lakh of loanee and 2.54 lakh of non-loanee farmers. This scheme will be continued during 2012-13. As the present insurance scheme is being operated on area approach depriving the farmers of certain benefits under the scheme, Government has proposed to redesign the scheme for the benefit of individual farmers.

5.2.6.1.1. Compensation under National Agricultural Insurance Scheme

In the event of crop loss due to natural calamities, Agricultural Insurance Company pays compensation upto 100% for food and oilseed crops and 150% for annual and commercial crops, if the claim is less than the premium collected. If the claim exceeds the premium amount, then the exceeding amount is equally shared between Central and State Government. During 2011-12, a sum of ₹7975.19 lakhs was disbursed as compensation to 2.32 lakh number of farmers by the State Government.

5.2.6.2. Modified National Agricultural Insurance Scheme

Modified National Agricultural Insurance scheme was introduced in 2011 to remove the bottlenecks in implementation of National Agricultural Insurance Scheme. This scheme is implemented in Tamil Nadu on pilot basis in the districts of Cuddalore, Sivagangai and Namakkal from Kharif 2011. The additional benefits are accuracy in estimation of crop loss, interim compensation to farmers, loss assessment based on weather and yield parameters, implementation at revenue village level, indemnity payable for standing crop (sowing to harvesting), prevented sowing and failed sowing/ planting risk, post harvest losses, on

account payment upto 25% of likely claim for immediate relief, calculation of threshold yield i.e., average yield of last 7 years excluding 2 years of declared natural calamities, minimum indemnity level of 70% against 60% in NAIS. This scheme will be continued during 2012-2013.

5.2.6.3. Weather Based Crop Insurance Scheme

The compensation extended under NAIS implemented from Kharif 2000 onwards is calculated based on the yield results of Crop Cutting Experiments. However, the crop loss due to seasonal changes has not been accounted for. Therefore to overcome the shortcomings, Weather Based Crop Insurance Scheme was introduced on pilot basis. This scheme is being implemented to mitigate the hardship of the insured farmers against the likelihood of financial loss on account of anticipated crop loss due to adverse weather conditions. The critical stages of a crop such as sowing, vegetative, flowering and harvest stages are insured for weather parameters like excess / deficit rainfall, temperature, relative humidity, consecutive dry days, wind speed, etc.

The scheme is applicable to both loanee and non-loanee farmers and all notified crops in the notified districts are insured. This scheme is implemented by AIC, ICICI-Lombard GIC, IFFCO-TOKIO GIC, Cholamandalam GIC, and HDFC Ergo GIC.

During 2011-12, the scheme was implemented in 11 districts viz., Theni, Tirunelveli, Tirupur, Salem, Dharmapuri, Virudhunagar, Perambalur, Ariyalur, Villupuram, Dindigul and Coimbatore at an outlay of ₹250 lakhs. An amount of ₹225.31 lakhs was spent towards enrollment of 23,953 farmers. This scheme will be continued during 2012-13.

5.2.6.4. Coconut Palm Insurance Scheme

Coconut, a perennial crop which earns more income for the growers is cultivated in Tamil Nadu in an extent of 4.00 lakh ha with a production of 55,471 lakh nuts and productivity of 13,852 nuts/ha. As there are better prospects to bring more area and increase the production besides value addition, Coconut is largely affected by natural calamities. In view of this, the Government has introduced Coconut Palm Insurance Scheme in 11 districts viz., Vellore, Krishnagiri, Salem, Erode, Coimbatore, Thanjavur, Theni, Dindigul, Tiruppur, Tirunelveli and Kanyakumari on pilot basis during 2011-2012 with the objectives to provide insurance coverage against natural and other perils, provide relief against income loss, minimize risks and encourage replanting.

Healthy nut bearing coconut palms grown as mono or intercrop, on bunds or homestead and all varieties of coconut (Tall varieties of 7 to 60 years and Dwarf & Hybrids of 4 to 60 years) are insured. Individual farmers / growers cultivating atleast 10 healthy nut bearing palms are eligible for enrolment.

Sum Insured and Premium

Coconut Palm age in years	Sum Insured Per Palm (₹)	Premium Per Palm Per Year (₹)
4 to 15	600	4.25
16 to 60	1150	5.75

Subsidy pattern

CDB (%)*	STATE GOVT (%)	FARMER (%)
50	25	25

* Coconut Development Board

During 2011-2012, a sum of ₹0.983 lakhs was spent as premium subsidy against an allocation of ₹10 lakhs and 707 farmers were enrolled under this scheme. This scheme will be implemented during 2012-2013 also.

5.3. Centrally Sponsored Schemes

5.3.1. Tamil Nadu Agriculture Information Service Network (TN-AGRISNET)

AGRISNET is a web portal of Agriculture department which provides updated information on weather forecast, Village level Fertility index, Soil Health status of each farm holding, welfare schemes, availability of all inputs, cropwise technologies, beneficiary list, Market trend of commodity prices, contacts besides farmers' database.

The Government to provide a better e-governance in Agriculture so as to keep farming community on knowledge updation of latest farm crop technologies and other cultivation approaches through new initiatives such as **Farm Crop Management System (FCMS), Touch Screen Kiosks**, new software modules - such as farmers database collection through mobile application, agro advisory service, farmers data updation through Interactive Voice Response (IVR), scheme benefit tracking system and online booking of farm machinery hiring system for effective individual farm planning, management of inputs and speedy transfer of extension activities under AGRISNET platform.

Government of India sanctioned a sum of ₹560 lakhs and the entire amount was utilized for commissioning of computers and other accessories in the Commissionerate of Agriculture, 30 district Joint directors offices, 385 block offices along with broad band connectivity. Government of India, in addition, has approved a sum of ₹331.25 lakhs to implement the novel concept of **Farm Crop**

Management System (FCMS) on pilot basis in 6 districts viz., Trichy, Coimbatore, Erode, Vellore, Thiruvarur and Virudhunagar.

5.3.2. National Agricultural Development Programme.

A special additional Central Assistance Scheme viz., National Agricultural Development Programme is implemented from 2007-08 with 100% assistance of Government of India. Greater flexibility and autonomy are provided to the States to develop and implement projects on the basis of priorities by formulating district and state agricultural plans with an aim to achieve 4% growth rate in agriculture and allied sectors during the 11th Five Year Plan.

Objectives

- To increase public investments in agriculture
- To reduce yield gap in key crops through focused interventions
- To maximize returns to the farmers
- To bring quantifiable changes in the production and productivity of agriculture and allied sectors.

Government with an aim to bridge the demand and supply in pulses and bring down the spiralling prices of pulses, to promote balanced nutrition besides ensuring food security, to satiate the demand of edible oils and to increase the productivity of rainfed crops for Sustainable Agriculture implemented Special Schemes viz., Integrated Development of Pulses Villages, Initiatives for Nutritional Security through Intensive Millets Promotion (INSIMP), Oil Palm Area Expansion and Rainfed Area Development Programme besides various other schemes during 2011-12. The salient features of these special schemes are as follows:

5.3.2.1. Integrated Development of Pulses Villages

This programme was implemented in 5000 Ha. of pulses area @ 1000 hectares per unit per block by raising Redgram/ Blackgram/ Greengram as pure crop in a contiguous extent to motivate the farmers to adopt all the improved technologies, increase the present productivity level and take up cultivation in a larger extent. A subsidy of ₹5400 per ha. for Redgram and ₹4800/- per ha. for Blackgram / Greengram was extended as 100% subsidy for distribution of Seed minikits, inputs for Integrated Nutrient Management and Integrated Pest Management besides training on e- pest surveillance.

This scheme will be implemented during 2012-13 also.

5.3.2.2. Initiatives for Nutritional security through Intensive Millets Promotion (INSIMP)

With the objectives to increase area under millets to ensure food and nutritional security, demonstrate improved production technologies, enhance the productivity, augment millets production, demonstrations were organised in a block in different clusters for which technology demonstration kits of critical inputs were supplied to the beneficiaries. Other activities such as production of high yielding varietal seeds, installation of pre processing and small processing units, post harvest and value addition, awareness campaign, appointment of Technical Assistants and training of selected farmers including technical assistants from each unit were carried out.

This scheme will be implemented during 2012-13 also.

5.3.2.3. Oil Palm Area Expansion

The main objective is to attain self sufficiency in edible oil production for which activities such as distribution of planting material, area expansion, supply of drip Irrigation units, Diesel / Electric Pumpsets & borewells, inputs for intercropping in Oil Palm, assistance for IPM and INM, establishment of vermicompost units were carried out in 11 districts viz.,Trichy, Karur, Perambalur, Thanjavur, Thiruvarur, Nagapattinam, Villupuram, Cuddalore, Theni, Tirunelveli and Vellore.

This scheme will be implemented during 2012-13 also.

5.3.2.4. Rainfed Area Development Programme

With the objectives to increase agricultural productivity of rainfed areas in a sustainable manner by adopting appropriate farming system based approaches, to mitigate the crop loss due to drought, flood or uneven rainfall distribution by adopting diversified and composite farming systems, to create sustained employment opportunities through improved on-farm technologies and cultivation practices and to enhance farmers income and livelihood support for reduction of poverty in rainfed areas,“**Rainfed Area Development Programme (RADP)**”is being implemented with a financial outlay of ₹1385.03 lakhs with the technical guidance of ICRISAT by conducting demonstrations in 10000 ha. (500 Ha. per district) in 20 districts namely Thiruvallur, Villupuram, Thiruvannamalai, Trichy, Kanyakumari, Perambalur, Ariyalur, Karur, Dindigul, Coimbatore, Madurai, Thoothukudi, Vellore, Virudhunagar, Salem, Ramanathapuram, Namakkal, Theni, Erode and Dharmapuri. This scheme will be implemented during 2012-13 also.

Government of India has sanctioned ₹31,489 lakhs to implement National Agricultural Development Programme during 2011-2012 for Agriculture and allied Departments. The amount sanctioned and expenditure for the schemes implemented by Agriculture Department during 2011-12 are as follows:-

(₹ in lakhs)

Sl. No	Schemes Implemented	Amount sanctioned	Amount utilised
1.	Precision farming in Agricultural crops	1043.00	887.09
2.	DAP Foliar spray in Pulses	625.00	625.00
3.	Intensification of Redgram cultivation through demonstration	524.00	511.12
4.	Application of Gypsum in Groundnut	753.00	503.12
5.	Development of infrastructure facilities in State Seed farms	500.00	487.72
6.	Promoting SRI through Demonstration	2700.00	2588.96
7.	Application of Zinc Sulphate in rice growing areas	439.00	336.52
8.	Farmers Hub/ Kisan Bhavan (Uzhavar Maiyam)	1496.87	100.00
9.	Modernization of Micro Nutrient Mixture Unit at	60.00	--

Sl. No	Schemes Implemented	Amount sanctioned	Amount utilised
10.	Oilpalm Area Expansion (OPAE)	1171.40	708.39
11.	Integrated Development of Pulses Villages	732.00	293.29
12.	Initiatives for Nutritional security through Intensive Millets Promotion (INSIMP)	1051.00	1007.43
13.	Rainfed Area Development Programme (RADP)	1385.03	1223.27
14.	Distribution of Power Rotary Weeder to Sugarcane growers	35.00	29.24
15.	Distribution of Maize Sheller	12.50	--
16.	Distribution of Coconut seedlings	112.50	11.27
17.	Reclamation of Saline and Alkaline soils	399.20	173.58
18.	Construction of MN Mixture godown	130.00	--
19.	Construction of Lignite storage godown for Bio-fertilizer Production units	300.00	4.95
20.	TANWABE	77.10	74.97
	Total	13546.60	9565.92

5.3.2.5. New Initiatives Proposed for 2012-13

The following new initiatives have been proposed during 2012-13 under NADP

- Improvement of soil fertility
- Production of Enriched Manure from Farm waste
- Integrated Farming System
- Programme on Pulses Mission
- Distribution of Pulses and Oilseed minikits to Thane Cyclone affected Coconut growers
- Increasing Cotton Production & productivity
- Strengthening the Biofertiliser production units
- Strengthening of STL & FCL by inductively coupled Plasma meter
- Infrastructure facilities to PTL and action to obtain national level accreditation
- Enhancing the soil testing capacity of Sugar mills by supplying laboratory instruments and equipments including Atomic Absorption Spectrophotometer
- Ensuring availability of more number of D x T Hybrid Coconut seedlings to farmers
- Distribution of Coconut tree Climbing devices and Copra Driers
- Distribution of Solar energised pumpsets
- Providing livelihood security to SC/ST farmer groups
- Exploring commodity potential in Agriculture
- Rejuvenation of Agricultural Extension Service

5.3.3. National Food Security Mission.

National Food Security Mission aims to ensure food and nutritional security through increase in area, production and productivity of rice and pulses on mission mode approach. Government of Tamil Nadu has adopted a two pronged approach, wherein, districts with larger extent but lesser productivity and districts with higher productivity but lesser extent have been selected for implementation of the scheme.

National Food Security Mission for Rice is implemented in 5 districts viz., Pudukkottai, Tiruvarur, Nagapattinam, Ramanathapuram and Sivagangai, while it is implemented for pulses in all the districts (except Chennai and The Nilgiris).

Under National Food Security Mission – Rice, activities viz., demonstrations on SRI and Hybrid Rice Technology, subsidized distribution of quality seeds of High Yielding varieties & hybrids, distribution of seed minikits, micro nutrients, conoweeders / other farm implements, plant protection chemicals and bio inputs, distribution of pumpsets, rotavators, sprayers, power weeders, lazer land leveller, transplanter and power tiller at 50% subsidy besides farmers training were taken up at a cost of ₹2096.634 lakhs against an allocation of ₹2144.19 lakhs during 2011-2012. This scheme will be implemented during 2012-13 at a total cost of ₹2750.070 lakhs.

Under National Food Security Mission – Pulses, activities such as production of Foundation Seed, production and distribution of Certified Seeds, distribution of gypsum, Micronutrient mixture, Rhizobium, plant protection chemicals, weedicides, plant protection equipments, sprinklers / mobile sprinklers, pumpsets, rotavators, laser land levelers, pipes and power tillers were distributed during

2011-2012 at an outlay of ₹1144.688 lakhs. A sum of ₹861.919 lakhs was spent. This scheme will be implemented during 2012-13 at a total cost of ₹2411.460 lakhs.

5.3.4. Accelerated Pulses Production Programme (A3P)

Accelerated Pulses Production Programme is implemented in Tamil Nadu to promote pulses as pure crop and increase the production and productivity of major pulses, blackgram & redgram with the objectives to:

- ✓ demonstrate plant nutrient and plant protection centric improved technologies
- ✓ demonstrate management practices in compact blocks covering larger area
- ✓ Participating farmers to motivate other farmers in the adjoining areas to adopt these technologies.

This scheme was implemented in a compact area of 1000 hectares per unit in 5 blocks under NADP and 7 blocks under NFSM- Pulses. Under NADP, A3P scheme was implemented in Vellore, Krishnagiri, Tiruvannamalai, Dharmapuri and Thoothukudi districts with one unit in each district with a financial outlay of ₹ 252 lakhs. Under NFSM, A3P scheme was implemented in Vellore, Krishnagiri, Nagapattinam, Tiruvannamalai, Pudukkottai, Thoothukudi, and Villupuram districts with one unit in each district with a financial outlay of ₹348 lakhs. A sum of ₹5400/- towards Redgram and ₹4800/- towards Blackgram / Greengram was extended as 100% subsidy for distribution of INM, IPM inputs, minikits and e-pest surveillance for an area of one hectare.

During 2011-12, a sum of ₹193.226 lakhs and ₹280.293 lakhs was spent under NADP and NFSM respectively.

5.3.5. Seed Village

Availability of quality seed in adequate quantities at right time is a decisive factor that influences the production and productivity of crops. Hence, the Government is taking all efforts to supply required quantity of seeds through Public Private Partnership mode. Foundation/Certified seeds of paddy, millets, oilseeds, pulses are distributed to the farmers at 50% subsidy per acre besides training them on scientific methods of quality seed production to produce quality seeds

This scheme was implemented at a total outlay of ₹3100 lakhs of which ₹ 2863 lakhs was expended. This scheme will be continued during 2012-13.

The processing capacity of 10 existing Seed Processing Units will be augmented by modernizing the Seed Processing Units at Pudurpalayam (Tiruchirappalli), Bhavani (Erode), Kattuthottam (Thanjavur), Annapannai (Pudukottai), Jeyamkondam (Ariyalur), Inungur (Karur), Veerapandi (Theni), Karaiyiruppu (Tirunelveli), Rasipuram (Namakkal) and Aliyar (Coimbatore) at an outlay of ₹637.40 lakhs.

5.4. Externally Aided Projects

5.4.1. TN IAMWARM PROJECT – Irrigated Agriculture Modernization and Water Bodies Restoration and Management (IAMWARM) Project

This project is a six year project (from 2007-08 to 2012-13) implemented with the assistance of World Bank to improve water resources in 61 selected sub basins through Water Resources Organization integrating the activities of the departments of Agriculture, Horticulture, Agricultural Engineering, Agriculture Marketing & Agri

Business, Animal Husbandry, Fisheries and Tamil Nadu Agricultural University.

An amount of ₹9800 lakhs has been allotted to the Agriculture Department for implementation of the following project activities during the entire project period.

- **Crop Demonstrations:** Crop demonstrations viz., Green manure-SRI-Rice Fallow Pulses, SRI-Rice Fallow Pulses, Modified SRI, Semi Dry Rice, Semi Dry Rice-Rice Fallow Pulses, Maize, Ragi, Pulses, Groundnut, Coconut and demonstrations on INM, Vermicompost (Silpaulin) are being laid out.
- Distribution of **Farm Implements:** Implements such as Conoweeder, Marker for SRI and Pulses Line Markers are distributed at 100% subsidy and Hand operated and Power operated Sprayers are also distributed to the farmers in the sub-basin areas at 50% cost.
- **Seed Village Programme:** It is implemented in selected one or two villages in a block. “**Farmers interest groups**” are also being formed for pulses, groundnut and green manure crops besides training and providing revolving fund to the groups for the group upliftment.
- **Information Education Communication / Capacity Building activities:** Training to farmers and farm workers, exposure visits, capacity building and also other publicity propaganda activities are being carried out.

During 2011-12, an amount of ₹881.604 lakhs and ₹423.95 lakhs were sanctioned to implement regular project activities in 30 sub-basins of phase III (second year) and 5 sub-basins of phase IV and a sum of ₹1391.443 lakhs was

sanctioned to implement the additional activities 1&2 in Phase I, II, III & IV sub-basins.

Phase III & Phase IV Regular Activities- 2011-12

S. No	Activities	Physical (Ha.)		Financial (₹ in lakhs)	
		Target	Ach.	Target	Ach.
1	Crop Demonstrations	12244	12057	846.635	803.593
2	Other Demonstrations	1586	1523	99.960	91.980
3	Agri. Implements (Nos)	9474	9474	160.807	142.184
4	Seed Village Programme	47	39	25.568	19.328
5	Information, Education and Communication	-	-	169.584	137.961
6	IAMWARM Cell		-	3.000	2.460
	Grand Total	23351	23093	1305.554	1197.506

Phase I, II, III & IV Additional Activities -2011-12

S. No.	Activities	Physical (Ha.)		Financial (₹ in lakhs)	
		Target	Ach.	Target	Ach.
1	Crop focus technology demonstrations in 5 Ha. Cluster (with 50% cost)	2122	2055	273.938	265.227
2	Rice Fallow Pulses in 2 Villages / Block. (@ Cluster of 50 Ha in each Village	6000	5573	120.000	111.466
3	Other Demonstrations	9465	7019	286.650	231.242
4	Awards for Best Farmers	122	67	12.300	5.600
5	Agri. Implements & Equipments (Nos)	23528	23528	354.175	299.599
6	Seed Village Programme	328	318	178.432	170.525
7	Capacity Building Activities	15360	12480	127.200	103.350
8	IAMWARM Cell - Procurement of equipments & Hiring of I&T van, etc.,		-	38.750	32.360
	Grand Total	56925	51040	1391.445	1219.369

The Cumulative financial progress from 2007-08 to 2011-12 is as follows:

(₹in lakhs)

S. No	Sub basins	DPR Cost	Achievement
1	Phase – I (9 sub-basins)	1570.200	1553.200
2	Phase – II (16 sub-basins)	663.600	660.300
3	Phase – III (30 sub-basins)	2599.100	1689.244
4	Phase – IV (5 sub-basins)	1205.300	389.205
5	Phase – IV – 2 (Amaravathy Sub basin)	767.300	-
6	Additional Activities – 1	2037.100	917.799
7	Additional Activities – 2	706.500	212.447
8	Additional Activities – 3	350.000	-
	Total	9899.100	5422.195

The World Bank has now approved Additional Activities-3 for an amount of ₹350 lakhs and ₹767.30 Lakhs for implementation of the project activities in Phase IV-2 (Amaravathi Sub basin) during 2011-12 and 2012-13. In 2012-13, it is proposed to implement Regular Activities in 30 Sub basins of Phase III and 5 sub basins of Phase IV

and additional Activities in 61 sub basins of Phase I, II, III & IV as detailed below:

S.No.	Activities	Phase	Amount (₹ in lakhs)
1	Regular Activities	Phase III (30 sub-basins) Third year	814.206
		Phase IV (5 sub-basins) Second year	781.326
		Sub Total	1595.532
2	Additional Activities - 1	Phase I (9 Sub basin)	498.218
		Phase II (16sub basin)	175.507
		Phase III (30sub basin)	325.195
		Sub Total	998.920
3	Additional Activities - 2	Phase I (9 Sub basin)	143.600
		Phase II (16sub basin)	97.740
		Phase III (30sub basin)	88.440
		Phase IV (5sub basins)	23.170
		Sub Total	353.250
		Grand Total	2947.702