3.3 AGRICULTURAL MARKETING, POST HARVEST MANAGEMENT, VALUE ADDITION AND FOOD PROCESSING

Introduction

The agricultural sector needs well functioning markets to drive growth, employment and economic prosperity in rural areas. Due to globalization, liberalization and privatization of the economy, agricultural marketing has become the key driver of the agricultural sector. As agriculture plays a major role in deciding the economy of the country, the schemes for agricultural production receive high priority resulting in increased agricultural production. Though our farmers have succeeded in the production front, they have not achieved appreciably in terms of price realization for their produce owing to their inaccessibility to efficient and scientific marketing system. The middlemen, commission agents and traders are depriving them of their due share of profit. An efficient and organized marketing system would ensure the maximum price realization to the farmers, which will induce them to produce more and market their produce in an increasing proportion.

Presently, marketing system (including collection, handling, storage, transport, processing, wholesaling, retailing, exports and associated infrastructure and support services) is fragmented and is uncoordinated, with inadequate infrastructure and supply chains involving high wastage and losses. As a result, the producer gets about only 30-40 percent of final price, as compared to around 60 percent in advanced countries. Even an additional margin of 3 percent in final price translates into 10 percent increase in net income of the farmers and that itself is a powerful incentive to invest in agriculture. But, this requires cutting down of the long chain of intermediaries, which can happen only with improved market access by farmers, interconnected markets, efficient supply chain and a robust marketing information system. Most of the farmers in the State are small and marginal farmers, often lacking the ability to produce enough marketable surplus for larger and remunerative markets. As a result, farm gate sales are high in the State (about 45 percent) and this is due to lack of information on market prices and on required quality parameters. If farmers are to get better prices, level of farm gate sales has to be brought down by giving the farmer, access to distant and bigger markets.

Currently, agricultural markets are regulated under 'State Agricultural Produce Marketing (Regulation) Act 1987 and Rules 1991'. Besides, there are other regulations viz: - Essential Commodities Act and various Control Orders issued thereunder. All these have partially created restrictive and monopolistic marketing structures.

Marketing Channels

The agricultural marketing channels are distinguished from each other on the basis of market functionaries involved in carrying the produce from the farmers to the ultimate consumers. The marketing channels can be divided into four broad groups viz: a) Direct to consumers, b) through public agencies or cooperatives, c) through wholesalers and retailers and d) through processors.

Direct to Consumers

Uzhavar Sandhaigal (Farmers' Markets)

To promote direct marketing facilities, the Uzhavar Sandhaigal (Farmers' Markets) have been set up in the urban areas in Tamil Nadu for the benefit of farmers as well as consumers. 179 farmers' markets are functioning in Tamil Nadu. Farmers get higher price i.e., 10-15 percent more than the prevailing wholesale market price and consumers also benefit by paying 5-10 percent less than the prevailing retail price due to the absence of middlemen.

Through Public Agencies and Cooperatives

Regulated Markets

Regulated markets act as a common forum for farmers and traders on equal footing for marketing of agricultural produce, thereby eliminating multi middlemen. In Tamil Nadu, at present there are 277 Regulated markets, 164 Rural godowns and 188 Godowns are functioning under 21 Market committees. Also, there are 288 Transaction sheds, 353 Drying yards, 89 Farmers' rest houses, 183 sanitary facilities, 10 Rural Business Hubs (RBHs) and 189 market information facilities in regulated markets. During the Eleventh Five Year Plan period, around 17.50 L.MT/ annum agricultural commodities were transacted, about 4.37 lakh farmers were benefited by regulated market transaction. During the plan period, 13,280 farmers and 701 traders had availed the pledge loan facilities.

Forty important agricultural commodities have been notified so far under Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987. Though there is a provision in the Act for notifying fruits and vegetables, cattle, poultry, sheep, pisciculture and apiculture products, these commodities are yet to be notified.

Pledge loan facility helps the farmers to avoid distress sale of agricultural produce during harvest season by storing their produce in the godowns of regulated markets and also to meet their immediate requirements and preparations for next cropping season. Small and marginal farmers can avail pledge loan upto 75 percent value of the produce and other farmers can avail upto 50 percent value of the produce limited to the maximum of ₹2.00 lakh with 5 percent rate of interest, upto a period of six months. Traders can avail pledge loan upto 50 percent value of the produce limited to the maximum of ` one lakh with 9 percent rate of interest upto a period of three months

The agricultural marketing system in Tamil Nadu needs to be strengthened. Out of the total agricultural production, only 20 percent arrives at the regulated and cooperative markets, while nearly 45 percent is farm level sales, 10 percent by private trading mandies and more than 25 percent is not at all accounted.

Cooperative Marketing Societies (CMS)

There are 110 Marketing Societies functioning all over the State. The cooperative marketing societies have tie up with the cooperative wholesale stores. This enables the cooperative marketing societies to procure the farmers' produce, process it and sell it to the cooperative wholesale stores so that the farmers get a good price and consumers get good quality produce at a reasonable price.

Through Wholesalers and Retailers

Commodity Groups

The Department of Agricultural Marketing and Agri Business has concentrated in the formation of commodity groups and direct tie-up with traders are made to fetch 15-20 percent higher income to the farmers. Agri-Business Centre (ABC) is focusing on market linkage/tie-up arrangement through MoUs between commodity group farmers and traders/ firms/private entrepreneurs to realize better remuneration by the farmers. So far, 1657 commodity groups have been formed and 1179 MoUs were made between farmers and traders through 21 ABCs during the Eleventh Five Year Plan. Similarly, Rural Business Hubs (RBH) created under NADP, envisaged expansion of opportunities through which farmers have increased access to markets through forward linkages.

Through processors

Direct Channel- Farmers- Processors/ Bulk consumers

Apart from linking the farmers to consumer through farmers' organizations,

other initiatives for reducing transaction costs are a) establishment of direct channel between farmers and processors/bulk consumers, through contract farming, b) Large Retail Chains, c) Agri Export Zones (AEZ), d) Specialised Markets- viz:- Mega Market (Velanvilaiporul Perangadi), Terminal Markets and Market Complexes for agricultural commodities.

Developmental issues

a) Dominance of non-formal channels, b) Need for institutional innovation for efficient alternative system responsive to market signals including stakeholders' interactions and linkages among growers – traders – processors – exporters, c) Developing wholesale markets by providing necessary infrastructure facilities, d) Prevention of post-harvest losses, e) Construction of roads linking villages with nearby assembling and wholesale markets (similar to sugarcane rural roads), f) Greater private investment in revamping agricultural marketing, g) Developing commodity exchanges, h) Capacity building training on post-harvest management, value addition and processing, quality and food safety for the farmers and market intermediaries and i) Strengthening of Market Intelligence and Information System.

Tamil Nadu Irrigated Agriculture Modernization and Waterbodies Restoration and Management Project (TN- IAMWARM)

Fig.3.3.1: Agri Business Centre

During the Eleventh Five Year Plan period, for the benefit of farmers of 61 sub-basins, 293 marketing infrastructure like ABCs, Storage godowns, Drying yards, Collection centers and Pack houses and 3280 supporting equipments were provided under IAMWARM project. Awareness campaigns 448 numbers at a cost of ₹ 0.36 crore, benefiting 8,960 farmers and other stakeholders were also conducted.

Tamil Nadu Small Farmers Agri Business Consortium (TNSFAC)

Small Farmers Agri Business Consortium is functioning in association with Government, private, cooperative and service sectors with the objective of linking small farmers to technologies and to markets by providing both forward and backward linkages through assured purchase at reasonable price for their produce by making formal/ informal arrangements. This scheme is being implemented in coordination with State Bank of India and its subsidiary banks and other nationalized banks. During the Eleventh Five Year Plan, a venture capital assistance of ₹ 15.30 crore for 28 agri business projects was sanctioned by TNSFAC.

Status of Grading and Packaging System, Warehouse/godowns, Cold chain:\

The storage capacity available under various public sector institutions is listed in Table 3.3.1.

Table 3.3.1: Institution-wise Storage Capacity Available in the State

(in L.MT)

S.No.	Agency	Storage capacity
1	Central Warehousing Corporation	6.85
2	Food Corporation of India	6.36
3	Tamil Nadu State Warehousing Corporation	6.47
4	Dept. of Agricultural Marketing and Agri Business	2.38
5	Tamil Nadu Civil Supplies Corporation Ltd.	9.47
6	Cooperative Sector	8.75
	Total	**40.28**

Source: Dept. of Agricultural Marketing and Agri Business, GoTN

Cold Storage Facilities

In Tamil Nadu, the private sector firms have established 201 cold storage units with a capacity of 2.15 L.MT for the storage of vegetables, fruits, dairy and fisheries products. Also, they are actively investing in logistics, warehouse establishment, standard quality certification, etc. Walk-in coolers of 2 MT capacity have been established in 27 farmers' markets and 8 cold storage with 500 MT. capacity in market complexes to prevent deterioration of fruits and vegetables and the details are given in Table 3.3.2.

Infrastructure facilities were provided at farm gate level to minimize post harvest losses to a large extent. Farmers are encouraged for setting up pack houses with washing and grading facility for fruits and vegetables in farm premises.

Table 3.3.2: Existing Storage Capacity of Cold Storage Units

(in MT)

S.No.	Cold Storage	No.	Capacity
1	Cold storage at Farmers' Markets (Walk-in coolers)	27	54
2	Tomato market complex- Maicheri, Salem district.	1	100
3	Hilly vegetables market complex-Karamadai, Coimbatore district	1	50
4	Onion and other vegetables market complex-Perambalur district.	1	50
5	Chillies market complex-Paramakudi, Ramnad district.	1	100
6	Mango market complex - Krishnagiri district.	1	50
7	Tomato market complex - Palacode, Dharmapuri district.	1	50
8	Onion market complex-Pongalur, Thiruppur district.	1	50
9	Grapes market complex- Odaipatti, Theni district.	1	50
	Total	**35**	**554**

Source : Dept. of Agricultural Marketing and Agri Business, GoTN

Agmark Grading

"Agmark" is the symbol of quality and purity. The main objective of the scheme is to provide unadulterated foodstuff to the consumers. The scheme is implemented as per the norms prescribed by Government of India. The Grade Standards are prescribed for more than 192 agricultural and allied products. In Tamil Nadu, 30 Agmark grading laboratories in districts and one principal Agmark grading laboratory at Chennai are functioning.

Food Processing and Post Harvest Management

Scenario of Food Processing and Post Harvest Management

Augmentation of agricultural productivity needs a concurrent development of post harvest support mechanism including normal and cold storage facilities, packaging facilities, agro processing industries, crop sterilization and sanitation facilities and an effective marketing reach to global markets. Food processing adds value to the agricultural, horticultural, livestock and fisheries products by using various techniques like grading, sorting and packaging, etc. which enhances their shelf life. It leads to diversification of agricultural activities, improves value addition opportunities and creates surplus for export of agro food products.

In Tamil Nadu, about 188 L.MT. of fruits and vegetables are produced. Due to heavy post harvest losses, there exists a considerable gap between gross production and net availability to the consumers. The post harvest loss is estimated at 30 to 40 percent in fruits and vegetables, which is primarily due to non adoption of post harvest management technologies. The post harvest losses start in the farm and travel along procurement chain and entire marketing channel. Adoption of post harvest technology and growth of food processing industries are inter-related as post harvest management increases the shelf life of fruits and vegetables and feed more to the agro processing industries.

Factors contributing to the development of Food Processing Sector

a). Vast source of agricultural/ horticultural raw material to food processing industries, b). Transformation of conventional farming to market–led commercial farming, c). Emerging domestic market in the form of

large urban middle class with its changing food habits, d). Change in consumption patterns driven by the processed food markets, e). Government assistance for setting up and modernizing of food processing units and creation of infrastructure, f). Increasing Foreign Direct Investment (FDI) in food business sector, g). Conducive food processing policy environment and h). Availability of huge scientific and research talent pool.

The current focus of research in food processing is to evolve technologies to reduce post harvest losses, minimize it in processed foods, evolve energy efficient and safe technologies for novel methods of preservation. The introduction of new dairy, poultry and fish products, perceptible shift in eating habits and increase in income have resulted in a change in demand for the processed foods especially for animal products.

Milk production in the State is around 6.83 million tonnes and the State contributes 5.61 percent of total milk production of India and ranks 8th in the country. Tamil Nadu is one of the leading States in broiler production with a record production of 397 thousand tonnes in 2009-10. The State ranks 2nd in the country's egg production with a production of 11.51 billion eggs and accounts for 19.74 percent of the poultry population of the country. More than 90 percent of poultry or poultry products exported from India originate from the State. At present, poultry concentration is restricted to certain poultry belts such as Namakkal, Erode and Coimbatore. Taking into consideration the export potentials for Europe and other countries, further planning and development should be made in processing. Integrated broiler production in the State is striving to move still forward in processing, packaging, preservation, developing diversified value added products and exploit global demand, as their level of operation has gone up. It would also take measures to ensure strict quality control by adopting Good Management Practices (GMP), monitoring mycotoxin, pesticide and drug residues etc. in poultry meat and assuring feed quality.

Tamil Nadu government has come out with a policy to achieve the following:

i. Increase in processed foods in the market from 1 percent to 10 percent.

ii. Rise in value addition levels from 7 percent to 30 percent

Key strategies to achieve the objectives are : single window clearance for agro based industries, creation of agro based Special Economic Zones (SEZs), setting up of agro clusters, providing incentives, evolving and implementation of food processing policy for the State, subsidy to stand alone small and medium enterprises, exemption from electricity charges and support for getting Hazard Analysis and Critical Control Point (HACCP).

Past and Current Trends in Food Processing Sector

Department of Agricultural Marketing and Agri Business is the State Nodal Agency for the Ministry of Food Processing Industries (MoFPI), Government of India. The MoFPI has decided to decentralize the implementation of food processing schemes in the Eleventh Five Year Plan period through banks/ financial institutions to provide a thrust and wider coverage for food processing industries in the country and simultaneously decentralize the procedures for appraisal, grant of assistance and monitoring standards.

Being a State nodal agency for MoFPI, the Department undertake activities like: processes Projects on Food Industry, Entrepreneur Development Programme (EDP), Food Processing Training Centers, Seminars and Exhibitions, Infrastructure for Food Processing Courses and Projects on Backward/Contract Farming with a grant sanctioned amount of ₹ 36.76 crore.

Food Parks for Processing

A Food Park in the name of Indian Food Processing Park at Aruppukottai in Virudunagar district was established at a total cost of ₹ 11.58 crore and availed a grant of ₹ 4.00 crore by private sector. M/s. Nilakottai Food Park Ltd., (NFPL) established a Food Park at Nilakottai in Dindigul district at a total cost of ₹ 16.00 crore and availed a grant of ₹ 3.25 crore.

Marketing Information Services and Dissemination

Agriculture has become increasingly market oriented. The farmers have to be sensitized to the market demand and price while taking production decisions. This has increased the need for the latest information on price in various markets. Market price information and intelligence plays a vital role in marketing of agricultural produce and for this, mass media and ICT could be used effectively. In the Central sector scheme of Marketing Research and Information Network (MRIN), computers were provided to 21 Market Committees and 189 Regulated Markets as an e-governance initiative. In addition to this, another mobile based information service viz:- 'Nokia Life Tools Agriculture services' aims to plug the information gap and caters to the needs of farmers via their mobile devices, by providing information on crop advisory, localized weather, agriculture related news and market prices was initiated. Besides, 6 Information Kiosk were established in Agricultural Producers' Cooperative Marketing societies.

Achievements during the Eleventh Five Year Plan

Market Development: 104 godowns in regulated markets have been constructed at a total cost of ₹ 23.03 crore. Seven transaction sheds at a cost of ₹1.89 crore and 17 auction sheds were created at a cost of ₹ 4.12 crore in regulated markets to facilitate easy transaction. Modern terminal market with all value addition facilities in Perundurai (Erode District) is being established under Public Private Partnership (PPP) mode at a total cost of ₹ 120.63 crore. 350 drying yards to prevent post harvest losses were constructed in villages, at a total cost of ₹ 9.49 crore. 75 Farmers' markets were established for fruits and vegetables in various places. Specialized market complexes for mango, onion, grapes, tomato and coconut were established at a total cost of ₹ 8.00 crore. RBHs have been established at Cuddalore, Villupuram, Salem, Dharmapuri, Erode, Dindigul, Ramanathapuram, Tirunelveli, Vellore regulated markets and in Coimbatore district under NADP at a total cost of ₹ 1.50 crore. Flower auction center at Kavalkinaru in Tirunelveli district at a cost of ₹ 1.63 crore and at R.S.Puram farmers' market in Coimbatore district at a cost of ₹ 0.11 crore were established.

Cold Storage and processing: Cold storage for tomato at Maicheri in Salem District and for chillies at Paramakudi in Ramnad district with 100 MT capacity each were established at a total cost of ₹ 1.99 crore. Cold storage rooms of 2 MT capacity for vegetables and fruits were created in 27 farmers' market at a cost of ₹ 1.33 crore. Cold storage for vegetables at Chekkikulam in Perambalur district and market complex for coconut at Pethappampatti in Thiruppur district were established at a cost of ₹2.15 crore. Market complex with cold storage for hilly vegetables at Karamadai regulated market in Coimbatore district was established at a cost of ₹one crore. Banana ripening chambers (5 MT/day capacity) were established to maintain uniform colour and quality of fruits in Trichy, Srivaikundam, Chinnamanoor and Mohanur at a total cost of ₹ 2.00 crore. At farm gate level, 50 pack houses with washing and grading facility for fruits and vegetables have been established at a cost of ₹ 1.25 crore.

An AEZ for cut flowers at Hosur in Krishnagiri district by M/s.TANFLORA, for flowers at Udhagamandalam in The Nilgiris district by M/s.Nilflora, for Mango at Nilakkotai in Dindigul district by M/s. Maagrita Export Ltd., and for cashew at

Panruti in Cuddalore district by M/s.Sattva Agro Export Pvt. Ltd., were established at a total cost of ₹ 78.28 crore. 12 Agmark grading laboratories were provided with latest equipments like electronic weighing balances and UV-visible spectrophotometers.

Twelfth Five Year Plan (2012-2017)

Objectives

Agriculture in developed countries has achieved greater success owing to its close integration with the market. Forward and backward integration of industry has resulted in better understanding of the global needs of the agricultural sector resulting in efficient production and distribution of agricultural produce (Vision Tamil Nadu 2023). With this in view, the Twelfth Five Year Plan aims at:

- To help the farmers in marketing their agricultural produce at fair price.
- To ensure remunerative income to the farmers by forming commodity groups.
- To create a healthy competition to sell farmer's produce in various marketing avenues.
- To make the farmers to participate in national/global markets through market intelligence.

Strategies

a).Enhancing the marketability of agricultural commodities by creating necessary modern infrastructure facilities and strengthening of existing markets by providing additional infrastructure facilities, b). Formation of Commodity Groups and forward linkage for direct purchase of agricultural produce by the traders/ buyers from farmers, c).Creating awareness among the farmers on market intelligence by providing market–led extension and Information, Education, Communication and Capacity Building (IEC&CB) activities, d). Integrated approach from planting to marketing which includes choice of crops (mainly banana, mango, tapioca, spices, flowers crops) grading, packaging, storage and marketing in domestic and international markets, e).Commercialization of agriculture through market driven production approach by utilizing the infrastructure and market intelligence available through ABC and RBH, f). Encouraging to set up Agri/Horti processing units by arranging backward and forward linkages and also through venture capital assistance under Small Farmers Agribusiness Consortium, g). Minimising post harvest losses by creating market infrastructure, cold chain and scientific storage facilities, h). Providing pack houses with gamma irradiation facilities, i). Encouraging the private sector to set up agro processing industries and Food Parks for processing at large scale with farmers' participation, j). Implementing Food Processing Mission with special emphasis on formation of State and District level Food Processing Mission and k).Initiating Food Processing Business Incubator facilities near production catchments.

Box 3.3.1: Agro Processing and Agri-Business Entrepreneur Development

A young entrepreneur with Doctorate in food processing pursued a special training on 'Agri Business Entrepreneur Development' in Tamil Nadu Agricultural University (TNAU). He entered into a Memorandum of Understanding (MoU) with TNAU to utilise the infrastructure facilities like Pasteurizer, Pulper, Homogenizer, Segragator etc., and started a juice unit. A market survey revealed that there was a demand for nutritive millet based products. He started production of nutrient cereals cookies at a cost of ₹ 40.00 lakh with ₹ 16.00 lakh as soft loan from GOI agencies. The initial production capacity was 1.25 tonnes per day. Entrepreneurs and talented youth may be encouraged to set up food processing units.

Source: Millets Workshop Proceedings, State Planning Commission, Tamil Nadu

Thrust Areas / Prospects

Food parks for processing:-

Includes food processing units such as fruits and vegetables processing, rice mill, flour mill, bakery unit, dairy products, milk products, animal feed, flakes and fast food. Besides State-of-the-art laboratory, hi-tech cold storage, captive power plant, effluent treatment plant with all other ancillary facilities are mandatory for these parks. Farmers will get ready market for their produce and processing companies will get continuous supply of raw material. Food park is poised to become a catalyst for the socio-economic development of the region.

Agri Export Zones (AEZ):-

With globalization and liberalization of Indian economy, international trade is playing a significant role in the growth of National and State economies. To increase the share of exports from Tamil Nadu, two more AEZs are to be promoted with modern pack house and gamma irradiation facilities to control the incidence of pest and diseases and also to enhance the shelf life of farm produce.

Fig.3.3.2: Agri Export Zone

Terminal Markets: -

In order to encourage private investment for development of marketing as well as value addition, Department of Agricultural Marketing and Agri. Business is taking efforts to establish modern terminal markets with all value addition facilities in Public Private Partnership (PPP) mode near metro areas of Chennai at Navalur village of Sriperumbudur taluk, Kanchipuram district at a cost of ₹ 113.85 crore, a terminal market complex at Perendurai, Erode district is under progress at a cost of ₹ 120.63 crore and at Mukkampatti and Thiruvathavur, Madurai district at a ₹ 105.05 to minimize the post harvest losses in perishables like fruits, vegetables and other agricultural commodities and to serve local and export markets.

Establishment of Business Incubators for Millets and Modernisation of Millet Processing Unit and Value Addition will be given adequate emphasis and for details, the sub chapter 3.1. 'Agriculture' may be referred.

Schemes Envisaged for the Twelfth Five Year Plan:

Market Promotion & Processing

- Strengthening of regulated markets by creating rural godowns, drying yards, transaction sheds, traders shops and own buildings at a total cost of ₹159.00 crore.
- Establishment of 25 RBHs in production centers at a total cost of ₹ 5.00 crore (@ ₹ 0.20 crore each).
- Strengthening of State Agmark grading laboratories by constructing own buildings for Agmark grading laboratories and providing scientific equipments at a total cost of ₹ 7.50 crore.
- Up-scaling the existing 1500 commodity groups, forming 1000 new commodity groups, construction of drying yards, storage sheds and providing value addition equipments at a total cost of ₹ 20.39 crore.
- Strengthening of IT infrastructure for market information dissemination and post harvest management (PHM) in 100 regulated markets at a total cost of ₹ 2.50 crore.
- Creation of food court for farmers in 50 regulated markets at a total cost of ₹ 10.00 crore.
- Establishment of 20 agro processing industries with farmers and private

participation at a total cost of ₹ 100.00 crore (₹ 5.00 crore/unit). for Viz., Tomato in Krishnagiri, Salem and Coimbatore districts, Banana in Trichy, Erode and Thoothukudi districts, Groundnut in Vellore and Thiruvannamalai districts, Pulses in Cuddalore, Vellore and Thiruvannamalai districts, Coconut – Copra in Kanyakumari and Thiruppur districts, Chillies in Ramanathapuram and Virdhunagar districts, Tamarind in Krishnagiri and Dindugal districts and Tapioca in Namakkal and Dharmapuri districts.

- Establishment of four Mega Markets at a total cost of ₹ 300.00 crore (@ ₹ 75.00 crore each).
- Creation of eight specialized market complexes at a total cost of ₹ 80.00 crore (@ ₹ 10.00 crore each).
- Creation of cold storages with 100, 1000 and 2000 MT capacity in 75 places to minimize the post harvest losses at a total cost of ₹ 240.00 crore.
- Cold storage market complex for fruits and vegetables at Mettupalayam with 500 MT capacity, Cold storage godown at Kinathukadavu, Cold storage facility for Sankarankoil Regulated Market and Cold storage market complex in Theni Regulated Market will be established during the Twelfth Five Year Plan period.
- 51 cold storage godowns with a capacity of 25 MT will be constructed at Regulated markets in the districts of Thiruvannamalai, Cuddalore,Erode,Vellore,Trichy, Coimbatore,Villupuram,Dharmapuri,Ramanathapuram, Salem, Dindugul, Kanyakumari, Thanjavur, Theni, Madurai, Tirunelveli and Pudukkottai for storing the farm produce and reducing the post harvest losses.
- Establishment of ripening chambers in 10 places at a total cost of ₹ 10.00 crore (@ ₹ 1.00 crore each).
- Establishment of terminal markets at Chennai and Madurai at a total cost of ₹218.90 crore.

Fig. 3.3.3: Capacity Building to farmers

- Setting up of 2 AEZs at a total cost of ₹70.00 crore (@ ₹ 35.00 crore each).
- Establishment of Agro Information Cell (AIC) at PACCS level and district level.
- Establishment of Food Processing Business Incubator at a cost of ₹ 5.00 crore per incubator in Dindigul, Tirunelveli, Krishnagiri, and Dharmapuri districts with an outlay of ₹ 20.00 crore.
- Setting up of food testing laboratories at a cost of ₹ 1.00 crore each in Dindugul, Tirunelveli, Krishnagiri and Dharmapuri districts with a total outlay of ₹ 4.00 crore.
- Assessment of post harvest losses in Tamil Nadu through research studies and survey on post harvest losses with an outlay of ₹ 0.15 crore.
- In line with the Solar Energy Policy 2012 of the State, as an initiative, cold storage unit in Ulundurpet RM, and Gingee RM, Villupuram district will be provided with Solar photo voltaic power generation system.

Capacity Building

- Organizing trainings, IEC&CB activities to 1.50 lakh farmers at a total cost of ₹ 3.50 crore.

- Post harvest technology training to farmers and department staff by Tamil Nadu State Agricultural Marketing Board (TNSAMB) at a total cost of ₹0.87 crore.

- Establishment of capacity building institute in Chennai at a cost of ₹15.00 crore.

- Empowering farmers with knowledge on price forecasting, high price period, best priced market, quality parameters, pre & post harvest technologies and value addition for different agricultural commodities and export opportunities for doubling their income through 'Market-led Agriculture'

Fig.3.3.4:Food Processing Business Incubator

- Agro Market Intelligence & Business Promotion Centre (AMI&BPC) is being established at Trichy at a cost of ₹1.35 crore. Based on 'Farmers cluster for a particular commodity', crop and market advisories will be rendered to farmers as 'one stop shop services' through AMI&BPC. This would help the farmers to tap market potential, future market alert and switching over to crops that gives the best returns during current / next season etc. AMI & BPC will be further expanded to Agri Business Development Center (ABDC) for direct marketing by farmers. Establishment of ABDC at Trichy as Special Purpose Vehicle (SPV) at a cost of ₹7.00 crore has also been proposed.

National Mission on Food Processing (NMoFP)

Ministry of Food Processing Industries (MoFPI) has proposed to launch a new Centrally Sponsored Scheme (CSS) in the ratio of 75:25 by GOI and State Governments. The National Mission on Food Processing during Twelfth Five Year Plan to be implemented through States. The basic objectives are : to augment the capacity of food processors working in unorganized sector and upscale their operations through capital infusion, technology transfer, skill upgradation and handholding support; to support established self help groups working in food processing sector and facilitate them to emerge as Small and Medium Enterprises (SME) status to ensure the standards of food safety and hygiene to the globally accepted norms, to facilitate food processing industries to adopt HACCP and ISO certification norms and to provide better support system to the organized food processing sector.

Institutional Mechanism for Monitoring and Evaluation

It is planned to have monitoring and evaluation of the activities to be carried in the Twelfth Five Year Plan by engaging available staff in the district headquarters.

Food Technology and Value Addition

The priority areas of food technology and value additions are research and development, quality control and capacity building. Research and development is needed to encourage both fundamental and applied research and keep abreast of global standards. Quality certification infrastructure in terms of labs and protocols for quality certifications have to be upgraded to World standards. Following schemes are proposed on education and capacity building in food processing and to address the issues of paucity of chilling infrastructure for milk and milk products, lack of modern slaughter houses, lack of value addition and infrastructure of fisheries export.

Education

Extending financial support to the students for internship/externship programme:

A grant of ₹3000 per student for in-plant training/internship and a travel grant to meet the travel expenses of students for their externship programme abroad at a cost of ₹0.50 crore are proposed.

Research & Human Resources Development

Centre of Excellence in Food Technology in State Agricultural / Veterinary University

It is proposed to takeup research activities on minimizing nutrient loss in food processing, food safety, shelflife extension and quality through establishing Centre of Excellence in Food Technology in State Agricultural / Veterinary University. Tamil Nadu has a very wide range of eating habits and food products. Such products and processes need to be documented, improved upon and patented. R&D on foods shall not only address regional needs but also open up a market amongst food industry at large. Contracting food technology specialist in each block to monitor and ensure safety of the food chains and creation of Food Technology Council of India on the lines of Medical/ Veterinary Council of India for synchronising the syllabus and curriculum of food processing academic courses are suggested. Exchange of scientists between institutes of national and international importance is to be promoted.

Post Harvest Management

Clean Meat Production

Setting up mini slaughter units in 1600 villages ensuring quality and safety meat to the consumers. Waste utilization - The generation of waste in present situation ascertains the need for effective waste treatment. Effluent treatment plant needs to be established in all the 385 blocks for safe disposal of waste from meat and animal products.

Creation of post harvest cold storage facilities for meat and egg

Creation of post harvest cold storage facilities on PPP mode to ensure food safety to a considerable extent. Establishment of post harvest centres in Fisheries at Chennai, Nagapattinam and Ramanathapuram districts of Tamil Nadu is proposed with the following components a) Establishment of fish products incubation centre, b) Establishment of vocational training centre, c) Establishment of certification centre and d) Establishment of post harvest centre in fisheries.

Outlay for the Twelfth Five Year Plan

An outlay of ₹541.39 crore is proposed as State fund for Twelfth Five Year Plan in agricultural marketing and food processing sector. The detail is given in Table 3.3.3. Apart from State fund, the funds from Ministry of Food Processing Industries GoI, Market Committee, Tamil Nadu Agricultural Marketing Board and Private will flow to this sector as shown in Table 3.3.4.

Fig.3.3.5: Post Harvest and Value Addition

Table 3.3.3: Twelfth Plan Outlay – (State Funding) Agricultural Marketing

(₹ crore)

S.No.	Programme/Schemes	Outlay
	Ongoing schemes	
1	Strengthening Agmark grading laboratories	7.50
2	NADP-Agricultural Marketing	112.00
3	(IAMWARM) Project	20.39
	Total Ongoing schemes	**139.89**
	New Schemes	
4	Establishment of Capacity Building Institute at Chennai	15.00
5	Establishment of AMI&BPC	1.35
6	IT infrastructure market information for market	1.00
7	Establishment Agro Information Cell at district level	302.00
8	Establishment of Agribusiness Development Centre at Trichy	7.00
9	Establishment of Food Processing Industries-SCP	50.00
10	Establishment of Agro Processing Parks with farmers participation	25.00
11	Assessment of post harvest losses	0.15
	Total New Schemes	**401.50**
	Grand Total	**541.39**

Table 3.3.4: Twelfth Plan Outlay (other than State Fund) - Agricultural Marketing

(₹ crore)

S.No.	Programme/Schemes	Outlay
1	Mega markets / Food parks (GOI 25 percent)	75.00
2	Specialized Market Complexes (GOI)	80.00
3	Cold Storage Units(GOI)-(including SCP of ` 10 crore)	240.00
4	Ripening chambers for SC and ST farmers	10.00
5	Establishment of Terminal markets	50.00
6	Establishment of Food Processing Business Incubators (GOI)	20.00
7	Establishment of Food Testing Laboratories	4.00
8	IT infrastructure market information for market (Market Committee)	1.05
	Total - GOI	**480.05**
	Others	
9	Establishment of Agro Processing parks with farmers participation (private)	75.00
10	Mega markets / Food parks (Private 75percent)	225.00
11	Establishment of Terminal markets(Private)	168.90
12	Agri Export Zone (Private)	70.00
13	Post harvest technology training to farmers and staff by TNSAMB	0.90
14	Creation of Food court for farmers in Regulated Markets (TNSAMB)	10.00
	Total - Others	**549.80**
	Grand Total	**1029.85**