

## 4. AGRICULTURE

Agriculture and allied activities, the single largest sector, acts as a growth engine by ensuring food and nutritional security to the masses besides providing raw-materials to agro-based industries and also providing employment and thereby income to the rural folk of the State and Indian Economy. Agriculture in India has undergone major structural changes in terms of the share of allied sectors in agriculture. The Share of Agriculture and allied activities in Gross Domestic Product (GDP) accounted for 17.1 per cent during 2008-09. Agriculture and logging alone had shared 16.3 per cent and the share of Forestry and Fishing accounted for 0.7 per cent and 0.8 per cent respectively. The share of agriculture sector in providing employment accounted for 52 per cent at the national level and the performance of agriculture sector is a helping hand for the growth engine of the Indian Economy.

Tamil Nadu shares about 4 per cent in respect of the geographical area, 7 per cent of population and 3 per cent of water resources of the country. The gross cropped area in 2008-09 accounted for about 39 per cent of the total geographical area, of which 56 per cent of the land was irrigated. The contribution of agriculture (including allied activities) of the State to the Gross State Domestic Product (GSDP) at Constant prices accounts for 9.4 per cent in 2008-09. However, the agriculture sector ensures household food security and brings forth equity in distribution of income and wealth which would result in the reduction of poverty. For achieving the target of 4 per cent of agricultural growth as envisaged in the XI Five Year Plan Period (2007-2012), agriculture is being focused in the State since 2007-08.

### **Land Use Pattern:**

Land is one of the main factors of production. The land resource constitutes the fundamental base for all human activities. The land use pattern had undergone many changes over the years.

Of the total geographical area of 130.27 lakh hectares of the State, the gross cropped area was 58.24 lakh hectares during 2008-09, which worked out to 44.7 per cent. The net area sown had witnessed a gradual decline from 56.38 lakh ha. in 1950s to 56.32 lakh ha. in 1990s and further declined to 50.43 lakh ha. in 2008-09. When compared to the previous year, the net area sown had perceived a marginal decline from 50.62 lakh ha. in 2007-08 to 50.43 lakh ha. which was due to the increase in fallow lands and land put to non-agricultural uses.

The details of land use pattern in Tamil Nadu are presented in the following table.

**Table – 1: Land Use Pattern in Tamil Nadu**

(Lakh Hectares)

Sl.No.	Classification	1950s	1990s	2006-07	2007-08	2008-09
	Geographical Area	129.54 (100.0)	130.16 (100.0)	130.27 (100.0)	130.27 (100.0)	130.27 (100.0)
1.	Forests	18.14 (14.1)	21.44 (16.5)	21.06 (16.2)	21.06 (16.2)	21.06 (16.2)
2.	Barren and Unculturable land	9.73 (7.5)	4.95 (3.8)	5.02 (3.9)	4.92 (3.8)	4.92 (3.8)
3.	Permanent Pastures & other grazing lands	3.75 (2.9)	1.25 (0.9)	1.10 (0.8)	1.10 (0.8)	1.10 (0.8)
4.	Cultivable waste	8.70 (6.7)	3.25 (2.5)	3.54 (2.7)	3.47 (2.7)	3.33 (2.6)
5.	Land put to non-agricultural purposes	12.70 (9.8)	19.07 (14.7)	21.60 (16.6)	21.69 (16.7)	21.73 (16.7)
6.	Miscellaneous tree crops	2.49 (1.9)	2.25 (1.8)	2.68 (2.1)	2.61 (2.0)	2.59 (2.0)
7.	Current fallow	11.05 (8.5)	10.57 (7.9)	9.07 (7.0)	9.81 (7.5)	10.13 (7.8)
8.	Other fallow	6.60 (5.1)	10.93 (8.5)	14.93 (11.5)	14.99 (11.5)	14.97 (11.4)
9.	Net area sown	56.38 (43.5)	56.32 (43.4)	51.26 (39.3)	50.62 (38.9)	50.43 (38.7)
10.	Area sown more than once	10.31 (7.9)	10.97 (8.2)	7.17 (6.0)	7.53 (5.8)	7.81 (6.0)
11.	Gross Area Sown	66.69 (51.5)	67.29 (51.7)	58.43 (44.9)	58.15 (44.6)	58.24 (44.7)
12.	Cropping intensity (%)	118.30	119.46	114.00	114.90	115.49

Source : Department of Economics and Statistics, Chennai -6.

Due to rise in population, urbanization and industrialization, the proportion of land put to non-agricultural uses was on the increase and it had marginally increased from 21.69 lakh ha. in 2007-08 to 21.73 lakh ha. in 2008-09. Of the total geographical area, forests accounts for 16.2 per cent (21.06 lakh hectares). The current fallow lands had also increased from 9.81 lakh ha. (7.5%) in 2007-08 to 10.13 lakh ha. in 2008-09 (7.8%). In the case of uncultivable land, there is no change when compared to the previous year. However, when compared to 1950s it had witnessed a decline and the reduction in the area would have gone for the promotion of forest coverage and the net area sown.

The proportion of lands coming under the category of 'other fallow lands' (lands in which cultivation is not taken up for a period of 1-5 years) is on the increase from 1950s (6.6 lakh ha.) to 1990s (10.93 lakh ha.). However, it had declined marginally from 14.99 lakh ha. in 2007-08 to 14.97 lakh ha. in 2008-09 and accounts for 11.4 per cent of the State's total geographical area. The permanent pastures and other grazing lands accounts for a meager proportion of 0.8 per cent of the State's total geographical area. The area under this category in 2008-09 is more or less the same as in 2007-08. The culturable waste and miscellaneous tree crops had marginally declined from 3.47 lakh ha. and 2.61 lakh ha. in 2007-08 to 3.33 lakh ha and 2.59 lakh ha.in 2008-09 respectively.

## Land Holding Size:

The land holding distribution is skewed towards small and marginal farmers. Even though the small and marginal farmers occupied a major share of more than 90 per cent of the total land holdings, they were operating only about 55 per cent of the total area and the average size of holding was very meager at 0.37 hectare. The semi-medium, medium and large farmers accounting for a small proportion of 10 per cent of the holdings had operated a higher proportion of 45 per cent of the total area. The average size of holding was higher at 19.48 hectare in the case of large farmers followed by medium farmers (5.68 ha.). The overall average size of land holding had come down from 0.91 hectare in 1995-96 to 0.89 hectare in 2000-01.

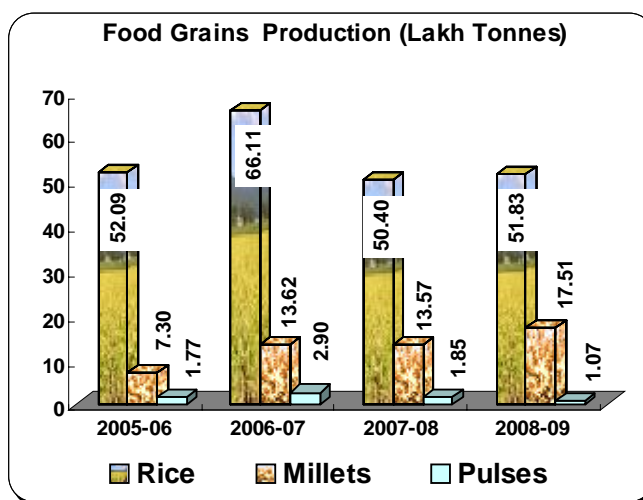
**Table – 2: Trends in Holdings, Area Operated and Average Size**

Sl. No.	Category	Number of holdings (lakhs)		Area operated (lakh ha.)		Average size of holdings (ha.)	
		1995-96	2000-01	1995-96	2000-01	1995-96	2000-01
1.	Marginal (<1 hectare)	59.51	58.46	22.10	21.59	0.37	0.37
2.	Small (1-2 ha.)	12.34	12.26	17.21	17.12	1.40	1.40
3.	Semi-medium (2-4 ha.)	6.01	5.71	16.23	15.51	2.70	2.72
4.	Medium (4-7 ha.)	1.99	1.93	11.35	10.94	5.68	5.68
5.	Large (7-10 ha.)	0.26	0.23	6.14	4.55	23.37	19.48
	Total	80.12	78.59	73.03	69.71	0.91	0.89

Source: Department of Economics and Statistics, Chennai – 6.

## Area Coverage, Production and Yield rate of Principal Crops : 2008-09:

The growth in the production of agricultural crops depends on many factors such as area cropped, input management and yield. The cropped area and productivity are determined by the fertility of soil, monsoon behaviour, rainfall, irrigation, availability of agricultural labourers, climatic changes, prices etc. The principal crops like paddy, coarse cereals and pulses, groundnut, cotton and sugarcane accounted for more than 60 per cent of the gross cropped area of the State.



**Table -3 Performance of Principal Crops in Tamil Nadu**

Sl. No.	Crop Group	2006-07			2007-08			2008-09		
		A	Y	P	A	Y	P	A	Y	P
1.	Paddy	19.31	3423	66.11	17.89	2817	50.40	19.32	2682	51.83
2.	Millets	6.98	1950	13.62	6.99	1941	13.57	7.24	2419	17.51
3.	Pulses	5.36	541	2.90	6.09	303	1.85	5.36	312	1.67
4.	Food grains	31.66	2610	82.63	30.97	2125	65.82	31.91	2225	71.02
5.	Sugar cane	3.91	115 @	451.68	3.54	108 @	380.71	3.09	106 @	327.99
6.	Cotton	1.00	374*	2.21	1.00	343*	2.00	1.14	279*	1.88
7.	Ground nut	5.08	1981	10.06	5.35	1957	10.48	4.90	1990	9.75

Note: A – Area in lakh hectares; Y- Yield in Kgs. per hectare; P – Production in lakh tones;  
\* - in terms of lint; @ - in terms of cane.

Source: 1. Season and Crop Reports, Department of Economics and statistics, Chennai -6.

### Cereals:

The cereals comprise of paddy and coarse cereals (millets). The millets viz. cholam, cumbu, ragi, maize, korraha, varahu and samai are grown in the State. In Tamil Nadu, the total area under cereals was 26.56 lakh ha. of which 19.84 lakh ha. of land was irrigated and the rest was unirrigated.

### Paddy:

The State had witnessed a favourable monsoon with good precipitation during the initial months of the review year 2008-09. This had enabled the Government to open the Mettur Reservoir, the lifeline of the State for irrigation on the scheduled date of 12<sup>th</sup> June. The timely opening of the reservoir in the State had helped much and covered the entire area under kar, kuruvai and sornavari seasons. The samba season was kick started well in advance with favourable situation.

Paddy (in terms of rice) the staple food for the State is raised more in the rice bowl districts of Thanjavur, Thiruvarur and Nagapattinam which accounted for about one fourth of the gross cropped area under paddy in the State. The area under rice cultivation almost remained stagnant in the recent years while the growth in yield rate had shown an increase in the production both at the State and at the All India level. As a result of the favourable seasonal conditions experienced in the State during the initial months of 2008-09, the State had covered more area under kar, kuruvai, sornavari, samba and thaladi seasons. However, the samba and thaladi crops were affected following heavy rains occurred during November 2008. The area under paddy rose from 17.89 lakh hectares in 2007-08 to 19.32 lakh hectares in 2008-09, the increase being 8.0 per cent. Even though, the yield rate of rice had come down from 2817 kgs. / ha. in 2007-08 to 2682 kgs. / ha. during 2008-09, the total production of rice had improved from 50.40 lakh tonnes to 51.83 lakh tones respectively.

### System Rice Intensification:

Rice is a staple food for more than half of the global population. The South and Southern Asian countries viz. India, China, Indonesia, Bangladesh, Thailand, Vietnam, Myanmar and Phillipines together account for 80 per cent of the world's rice area. At the global level, India stands first in terms of area under rice cultivation (42.4 million ha.) and

occupies the second position in respect of rice production (88 million tonnes). The area under rice cultivation in India had declined from 45 million ha. in 2000-01 to 42.4 million hectares in 2008-09. The area under rice production had decreased mainly due to alarming growth of population, reduction in ground water level, aberrant weather, erratic distribution of rainfall in rice growing areas and growing interest towards the cultivation of cash crops and perennial crops. Realizing the declining trend in area under rice cultivation, the State had advocated the System Rice Intensification (SRI). Under SRI, the high yielding ADT varieties like 35, 36, 42, 43, 45 and 48, white ponni, CR 1009, ASD 18, ASD 19 and CO 43 and the low tillering varieties ADT 37, TKM 9 and ASD 16 are cultivated during the kuruvai, early samba and navarai season except samba and thaladi season. Under SRI cultivation, the States were given a subsidy of Rs.5000/- per hectare was given to the farmers as a motivation to switch over from the conventional method of cultivation to this new technique. The area under SRI demonstration had increased from 4.21 lakh ha. in 2007-08 to 5.38 lakh ha. in 2008-09 in the State. The average yield per hectare had also gone up to 7634 kgs. Thus, it is a welcome feature that the SRI method of cultivation being adopted in the State is cost effective and saves water from 30 to 40 per cent and increases production, boost up with high yield rate which could bring food security in the near future.

### **Coarse Cereals:**

Of the total area of 7.24 lakh ha. covered under coarse cereals, the share of cholam (Jowar) and maize was higher at 75 per cent in 2008-09. Owing to the favourable monsoon in 2008-09, the area under coarse cereals improved from 6.99 lakh hectares in 2007-08 to 7.24 lakh hectares in 2008-09, the increase being 3.6 per cent and the production of coarse cereals had also increased from 13.57 lakh tonnes in 2007-08 to 17.51 lakh tonnes in 2008-09. The yield rate had increased from 1941 kgs. in 2007-08 to 2419 kgs. in 2008-09, registering an increase of 24 per cent.

### **Pulses:**

To bridge the demand-supply gap, a variety of pulse crops in a wide range of agro-climatic conditions are being grown in India. The population of the country relied upon pulses for meeting the protein requirement mainly due to vegetarian food habit and high cost of animal based protein. India accounts for about 25 per cent of the global production and 33 per cent of the acreage. India collaborates with the Syria leased International Centre for Agriculture Research in Dry Areas (ICARDA) for growing more pulses in dry areas. Turning to the State scenario, pulses are being raised in the State as a single crop. Of the total area under pulses, blackgram (urad) was grown in more than one half of the area during the two seasons; blackgram and green gram put together accounted for more than 70 per cent of the total area under pulses in the State during 2008-09.

The total area under pulses in the State in 2008-09 had come down from 6.09 lakh hectares in 2007-08 to 5.36 lakh hectares, the decline being 17.1 per cent. The production of pulses came down to 1.67 lakh tonnes in 2008-09 from 1.85 lakh tonnes in 2007-08 which worked out to about 11 per cent. The yield rate of total pulses in the review year (2008-09) was encouraging as compared to the previous year 2007-08. The actual yield rate had improved from 305 kgs. / ha. in 2007-08 to 312 kgs./ha. by 3.0 per cent in 2008-09.

## Foodgrains:

The total cropped area of food grains including paddy, coarse cereals, millets, pulses etc. both under kharif and rabi season together increased marginally from 30.97 lakh ha. in 2007-08 to 31.91 lakh ha. in 2008-09. The total production of foodgrains had accelerated from 65.82 lakh tonnes in 2007-08 to 71.02 lakh tonnes in 2008-09, the increase being 7.9 per cent. Turning to productivity, the yield rate of food grains had witnessed a positive trend which had improved from 2125 kgs/ha to 2225 kgs/ha during the review year.

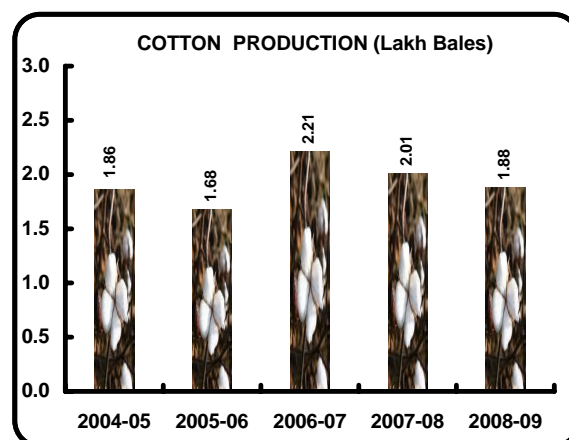
## Sugarcane:

In respect of sugar production, India ranks second among the sugar producing countries in the World by contributing about 15 per cent of the total white crystal sugar production. Brazil remains unchallenged as the top sugar producer. Due to population growth, the demand and consumption of sugar tend to increase in the developing countries like India. However, the global sugar consumption was at 2 per cent per annum. Sugarcane is the traditional and major commercial crop being grown abundantly in the State. The area under sugarcane cultivation needs to be increased to meet the increasing demand in the State. However, the area under sugarcane had plummeted from 3.54 lakh ha. in 2007-08 to 3.09 lakh ha. in 2008-09. Likewise, the yield rate in terms of canes had also witnessed a fall from 108 tonnes./ha. to 106 tonnes /ha. during the years respectively.

Owing to the decrease in the area under sugarcane and also in the yield rate, the production of sugarcane in the State had come down from 380.71 lakh tonnes in 2007-08 to 327.99 lakh tonnes in 2008-09. However, there is a scope for expanding the area under the heavy duty crop. Micro irrigation techniques are being advocated among farmers to enhance production of sugar in the State. Sugarcane is often cultivated as a rotational crop where paddy, cotton and groundnut are being cultivated continuously. There are 41 sugar mills in the State which includes 16 sugar mills in Cooperative sector, 3 mills in public sector and 22 mills in private sector. The cane crushed through these units was 229.68 lakh metric tonnes in 2007-08 whereas the quantity of cane crushed was estimated at 166.4 LMT in 2008-09. The sugar produced during 2007-08 was 21.41 (LMT) with the recovery of 9.32 per cent and the estimated production during 2008-09 was lower at 16.16 LMT with a recovery rate of 9.71 per cent. The statutory minimum price for cane had been further increased from Rs.1034/- per tonne in 2007-08 to Rs.1100/- per tonne during 2008-09.

## Cotton:

Cotton, one among the cash crops is grown in nine major States of the country viz. Punjab, Haryana, (North) Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu. In Tamil Nadu the area under cotton marginally rose from 0.99 lakh ha. in 2007-08 to 1.14 lakh ha. in 2008-09, the



increase being 15.1 per cent. However, cotton production (1.88 lakh bales) and yield rate (279 lint) in the review year had witnessed a dip over the previous year's level of 2.01 lakh bales and yield rate of 343 lint by 6.47 per cent and 18.66 per cent respectively.

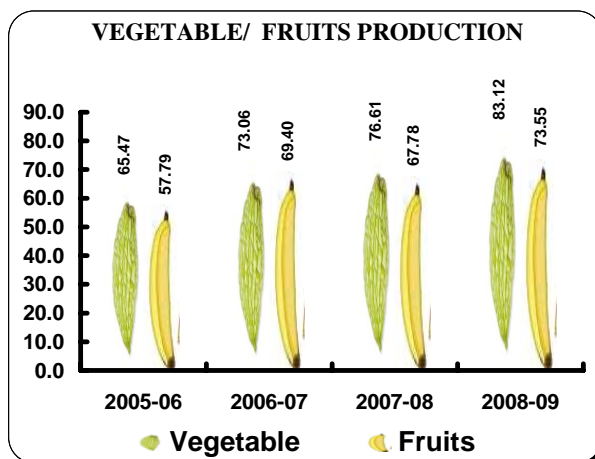
### Oilseeds:

The major oilseeds namely Groundnut, Gingelly, Caster and Sunflower are grown in the State. Of these crops, groundnut is cultivated more in the districts of Thiruvannamalai, Villupuram, Vellore, Namakkal, Erode, Salem, Pudukottai and Perambalur accounting for more than 60 per cent of the total area under groundnut in the State. The area under oilseed crops had plummeted from 6.59 lakh hectares in 2007-08 to 5.86 lakh hectares in 2008-09, registering a decrease of 11.07 per cent.

The production of these crops was estimated at 10.43 lakh tonnes during 2008-09 had witnessed a dip when compared to the previous year's production of 11.51 lakh tonnes. Turning to yield rate of groundnut, it had marginally increased to 1990 kgs. / hectare as compared to the previous year's yield rate of 1957 kgs/ha. The yield rate of gingelly (sesamum) also had gone up by 16.8 per cent, from 433 kgs to 506 kgs respectively. However, the productivity of other oilseeds had witnessed a negative trend.

### Horticulture:

Tamil Nadu is endowed with diverse varieties of horticultural crops like fruits and vegetables, spices, plantation crops, flowers, medicinal and aromatic plants. The area under horticultural crops had improved from 9.31 lakh hectares in 2007-08 to 10.08 lakh hectares in 2008-09, registering an increase of 8.3 per cent.



**Table –4 : Area, Production and Yield Rate of Horticultural crops in Tamil Nadu**

Sl. No.	Crop group	2007-08			2008-09		
		A	P	Y	A	P	Y
a.	Fruits	2.80	67.78	24.21	3.04	73.56	24.20
b.	Vegetables	2.44	76.61	31.40	2.65	83.12	31.37
c.	Spices and condiments	1.40	7.39	5.28	1.52	8.02	5.28
d.	Plantation crops	2.31	7.98	3.45	2.51	8.66	3.45
e.	Flowers	0.26	2.10	8.08	0.27	2.27	8.41
f.	Medicinal plants	0.09	0.18	2.00	0.09	0.19	2.11
	Total	9.30	162.04	17.42	10.08	175.82	17.44

Note: A – Area in lakh hectares; P – Production in lakh tones; Y- Yield in Tonnes per hectare;

\* - in terms of lint; @ - in terms of cane.

Source: Commissioner, Department of Horticultural and Plantation crops, Chennai – 5.

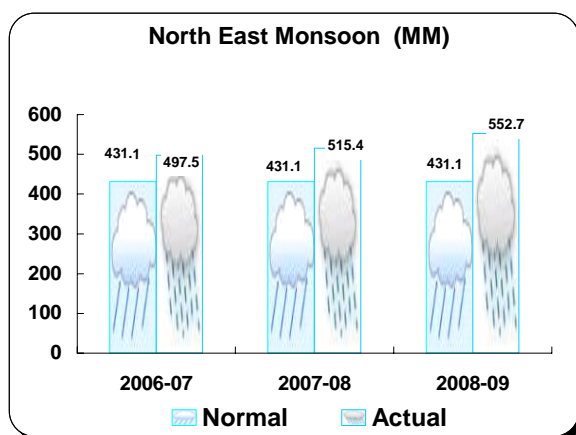
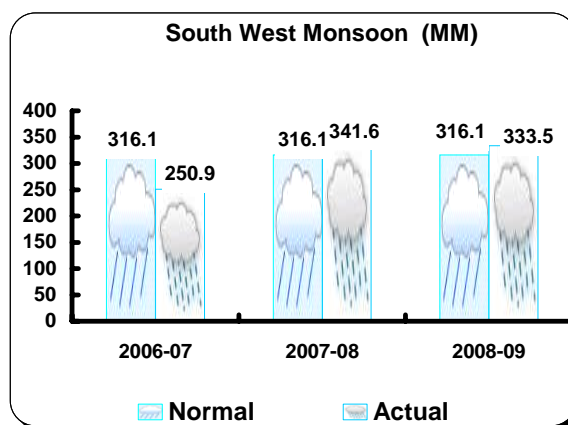
The horticultural crops, fruits and vegetables accounted for a higher share of about 56 percent of the total cultivated area, followed by plantation crops (25%) and spices and condiments (15%). The total production of horticultural crops had marginally gone up from 162.04 lakh tonnes in 2007-08 to 175.82 lakh tonnes in 2008-09. Fruits and vegetables occupied a major share of 89 percent in the total production of horticultural crops. Though there was a marginal increase in the production of horticultural crops, the yield rates of the horticultural crops remained more or less the same during the two years.

### Input Management:

The agricultural production and productivity depend on the input supply like quality seeds, fertilizer, plant protection chemicals, adoption of pest management techniques, credit management along with adequate rainfall and assured irrigation facilities.

### Rainfall:

The overall area coverage, production and productivity depend on the timely onset of the monsoon and good precipitation in the State. The State had experienced favourable seasonal conditions during the initial period of 2008-09. The opening of the Mettur dam for irrigation on the scheduled date of 12<sup>th</sup> June of the review year (2008) had helped to cover more area under kar, kuruvai, and sornavari seasons. Even though the samba season started with favourable condition, it was affected by heavy rain during November 2008. The temporal and spatial spread of rainfall during South West Monsoon had augmented much to store water in the reservoirs in the State.



During 2008-09, the rainfall received in the South West monsoon and North East monsoon was encouraging and more than the normal level. However, it had witnessed a dip by 2.6 per cent as compared to the previous year actual (341.6 mm). The precipitation during north east monsoon was satisfactory in 2008-09 and registered an increase of 7.2 per cent over the previous year 2007-08. Total rainfall (1023.1mm) during 2008-09 was found to be higher than the normal level.

**Table – 5: Season-wise Rainfall in Tamil Nadu (in mm)**

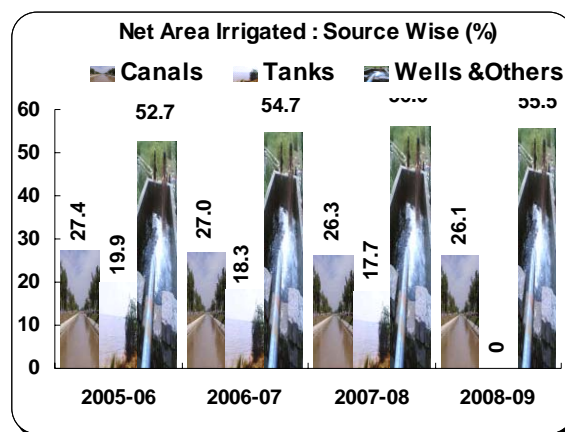
Year	South West (June –Sept.)	North East (Oct.-Dec.)	Winter (Jan.&Feb)	Hot weather (March-May)	Total
Normal	316.1	431.1	35.3	129.1	911.6
2006-07	250.9	497.5	10.9	100.4	859.7
2007-08	341.6	515.4	46.2	261.2	1164.4
2008-09	333.5	552.7	7.7	129.2	1023.1

Source: Department of Economics and Statistics, Chennai – 6.

### Irrigation:

Water is a scarce resource and the State accounts for only 3 per cent in the availability of water resources whereas 7 per cent in respect of population of the country. The surface water potential is estimated at 853 TMC inclusive of 261 TMC contributed by neighbouring States. The State had almost fully utilized the surface water resources and the ground water has become the only alternative. The ground water potential in the State was estimated at 815 TMC.

Due to increased exploitation of ground water in the State, Rain Water Harvesting Programmes are being advocated and implemented in the State for recharging ground water. The net area irrigated had improved from 28.6 lakh. Ha in 2007-08 to 29.3 lakh. Ha in 2008-09. The increase being 2.4 per cent, the increase was following a marginal rise in the irrigation of canal, tanks and well irrigation during 2008-09. The irrigation intensity had also improved from 114 per cent in 2007-08 to 115.7 per cent in 2008-09 likewise, the net area as per centage to net area sown and Gross area as a per centage to gross area sown had also rose to more than 58 per cent.



**Table – 6: Irrigation Indicators – Tamil Nadu**

Items	2006-07	2007-08	2008-09
Total Rainfall (mm)	859.7	1164.8	1023.1
Net Area Irrigated (lakh ha.)	28.9	28.6	29.3
A. Canals	7.8	7.5	7.6
B. Tanks	5.3	5.1	5.4
C. Wells	15.7	15.9	16.2
D. Others	0.1	0.1	0.1
Gross Area Irrigated (lakh ha.)	33.1	32.5	33.9
Irrigation intensity (%)	114.5	114.0	115.7
Net Area Irrigated as % to Net Area Sown	56.4	56.6	58.1
Gross Area Irrigated as % to Gross Area Sown	56.6	55.92	58.26

Source: Department of Economics & Statistics, Chennai – 6.

### **IAMWARM Project:**

The Irrigated Agriculture Modernisation and Water Bodies Restoration and Management (IAMWARM), a six year project is implemented in the State in 63 sub-basins with World Bank assistance since 2007-08 by various departments and Tamil Nadu Agricultural University (TNAU). This project aims at for improving the effective water resource management in selected 55 sub-basins. In the first phase, it was implemented in 9 sub-basins during 2007-08 and in phase II, the scheme was extended and implemented in 16 more sub-basins in the State. An amount of Rs.3.92 crores was allotted in 2008-09 for the 25 sub-basins. During 2008-09, demonstration was conducted covering an extent of 6751 hectares and agricultural implements were distributed to 1934 beneficiaries. An amount of Rs.321.37 lakhs was spent for implementing the schemes.

### **Command Area Development Programme:**

With a view to improve the efficiency of use of water and agricultural production per unit, volume of water in canal irrigated areas, the Command Area Development Programme is implemented in various commands of the State. The scheme is shared by the Central and State Governments with an equal ratio of 50:50. During 2008-09, the programme was implemented in the on going Cauvery command in Thanjavur, Tiruvarur, Nagapattinam, Trichy and Cuddalore districts in six commands viz., Willington Reservoir project, Thirukoilur Anicut Project, Kodiveri Anicut Project, Vaniyar Reservoir Project, Ichambadi Anaicut Project and Guntar Chittar Karuppanadhi Project. The two types of works carried out under CADP are On Farm Development (OFD) works and Rotational Water Supply (RWS). Under OFD works, to cater to the needs of head reach and tail end farmers, construction of field channels and drains from individual fields to natural drains are executed by Agricultural Engineering Department. After completion of OFD works, the water supply schedule for equitable distribution of water to each farmer in proportion to their land holdings is prepared by the Department and handed over to the Farmers' Association and Council for implementation.

Under On Farm Development works, there was an increase in the area benefited from 20449 hectares in 2007-08 to 20798 in 2008-09. Likewise, the financial expenditure incurred was to the tune of Rs.1495.32 lakhs and Rs.1543.63 lakhs during the respective years. In the case of Rotational Water Supply (RWS), the area benefited had witnessed a dip from 39285 hectares to 29752 hectares during the respective years. Under RWS, the programme expenditure had come down from Rs.115.33 lakhs in 2007-08 to Rs.88.16 lakhs in 2008-09. However, the overall expenditure incurred for OFD and RWS had increased from Rs.1610.65 lakhs in 2007-08 to Rs.1631.79 lakhs in 2008-09. The overall area benefited under OFD and RWS had decreased from 59734 hectares in 2007-08 to 50550 hectares in 2008-09.

**Table – 7: Performance of Command Area Development Programme**

Sl. No.	Category	2007-08		2008-09	
		Expenditure (Rs. lakhs)	Area benefited (Ha.)	Expenditure (Rs. lakhs)	Area benefited (Ha.)
1.	On Farm Development Works	1495.32	20449	1543.63	20798
2.	Rotational Water Supply	115.33	39285	88.16	29752
	Total	1610.65	59734	1631.79	50550

*Source: Agricultural Engineering Department, Chennai – 35.*

## Power:

Power is an important input being provided by the Government at free of cost to marginal farmers since 1984-85 and to small farmers from 1999-2000. The free power supply is provided for 6 hours in day time and 8 hours at night. The gross power consumption enjoyed by the agriculture sector had improved from 10610 mu in 2006-07 to 10716 mu in 2007-08. However, it had marginally declined to 10528 mu in 2008-09. Likewise, the average power consumption per pumpset per year had also rose from 5894 units in 2006-07 to 5953 units in 2007-08 and it was 5541 units in 2008-09. In fact, the free power supply is found to be a bonanza to the farmers for lifting well water and a helping hand to boost area coverage, production and productivity in the State.

**Table – 8: Power Consumption in Agriculture Sector**

(Million Units)

Year	Total power consumption in the State (in MU)	Power consumption in agriculture (in MU)	Number of pumpsets	Average consumption per pumpset per year (in unit)
2006-07	49263	10610	1801972	5894
2007-08 (Preliminary)	52228	10716	1837589	5953
2008-09(RE)	52794	10528	1872734	5541

Source: Statistics At a Glance, 2008-09, TNEB, Chennai – 2.

## Seeds:

Seed is a major input for the cultivation of agricultural crops. It is the fundamental and crucial input for sustained growth in farm production. The role of the seed sector in the State is not only to ensure quality and adequacy in seed supply but also to ensure varietal diversity. Quality seeds are distributed through Government depots, co-operative institutions and private outlets in the State.

**Table – 9: Distribution of seeds by various agencies (tones)**

Sl. No.	Agencies	2006-07	2007-08	2008-09
1.	Government	25370	23550	21186
2.	Quasi Government	1963	1632	758
3.	Private	55456	50236	48829
	<b>Total</b>	<b>82789</b>	<b>75418</b>	<b>70773</b>

Source: Department of Agriculture, Chennai – 5.

The production and yield rate of crops mainly depend on the quality of seeds and more specifically on genetic and physical priority. The desirable Seed Replacement Rate (SRR) for achieving higher productivity was 25 per cent for self pollinated crops like paddy, ragi, pulses, groundnut, gingelly etc. and 35 per cent for cross-pollinated crops such as cholam, cumbu and cotton and 100 per cent for hybrids. However, the present SRR is a little bit higher rate except for pulses and oilseeds.

**Table – 10: Crop-wise Seed Replacement Rate (SRR) on  
Select Crops in Tamil Nadu 2008-09**

Crops	SRR (%)
Paddy	63
Millets	55
Pulses	16
Oilseeds	7
Cotton	98

*Source: Policy Note on Agriculture 2009-10, Department of Agriculture, Chennai – 5.*

**Fertiliser:**

**i. Chemical Fertiliser:**

The application of chemical fertilizer is advocated in the State based on soil test. The balanced use of chemical fertilizers would help in improving the productivity of crops. The consumption of chemical fertilizer was comparatively more than bio-fertilizers. The green revolution technologies and development of various irrigation sources had resulted in increasing the level of fertilizer consumption. Likewise, the production and the use of bio-fertiliser in the State is gaining momentum. However, the application of fertilizer is imperative for stepping up the yield rate in Agriculture Sector.

**Table – 11: Consumption of Chemical Fertilizers** (Lakh tonnes)

Sl. No.	Nutrients	2006-07	2007-08	2008-09
1.	Nitrogenous	5.86	5.43	6.47
2.	Phosphorous	2.69	2.28	2.55
3.	Potash	2.70	3.04	3.63
	Total	11.25	10.76	12.65
	Per hectare consumption (kgs.)	187	166	166 (P)

*P – Provisional. Source: Department of Agriculture, Chennai 600 005.*

The actual consumption of chemical fertilizers viz. Nitrogen, Phosphorous and Potash in the State was found to be in the ratio of 2:1:1 as against the conventionally accepted ratio of 4:2:1 which indicates that there was an imbalance in the use of chemical fertilizers. The total consumption of chemical fertilizer had increased from 10.76 lakh tonnes in 2007-08 to 12.65 lakh tones, registering an increase of 17.6 per cent, of which the consumption of Nitrogen and Potash accounted for an increase of 19 per cent each and phosphorous by 11.8 per cent during 2008-09.

**Organic Manure:**

The organic manure would improve the water holding capacity of the soil and enhance microbial activity and also help in augmenting the nutrient absorption capacity of the crop. The application of organic manure is promoted through cultivation of green manure crops, application of vermi composting blue green algae, azolla and biofertilizers. Further, the micro nutrients help in sustaining the fertility and health of the soil. Most of the soil in the State is deficit in micronutrient content and has a direct impact on the productivity of crops. To improve the productivity of the soil, the State is running a Micro Nutrient Production Centre at Kudumiyamalai with an annual production capacity of 1400 MTs. for different crops. Azolla was produced and distributed to the farmers and

14 types of notified micronutrients mixture were produced for different crops. During 2008-09, 5000 kits were distributed for producing vermi compost. A total quantum of 525 MTs of blue green algae and 500 MTs of azolla were produced and distributed to the farmers. The production and distribution of micronutrient mixture had, however, plummeted from 1587 to 1537 tonnes and from 1370 to 1311 tonnes during the two years respectively. Likewise, the total area coverage had witnessed a fall from 72668 to 69211 hectares and the number of beneficiaries from 5.65 lakhs to 5.62 lakhs for the respective years. However, it is a welcome feature to note that the distribution of micro nutrient (1311 tonnes) was more than the estimated requirement of 815 tonnes during 2008-09.

### **Bio-fertilizer:**

The prolonged usage of chemical fertilizers would result in deterioration of soil health. Hence, the State had advocated the usage of bio-fertilizer for ecologically protected farming. With the application of bio-fertilizers, the fertility and health of the soil could be sustained and plant growth could be promoted. In view of cost effective and environment friendly, in addition to the existing six bio-fertilizer production units, the State had further established 9 more units at a cost of Rs.814.50 lakhs which would enhance the production from the present level of 80 lakh packets to 192.50 lakh packets. As against the estimated requirement of 1600 tonnes of bio-fertilizers, the production of the six units was higher at 1657 tonnes in 2007-08 and 1614 tonnes in 2008-09. Towards the target of 1600 tonnes, the State had distributed 1586 tonnes in 2007-08 and 1480 tonnes in 2008-09. During the two years 2007-08 and 2008-09, the area covered under bio-fertilizer was 3.07 lakh hectares and 2.86 lakh hectares and the total number of farmers benefited was 5.65 lakhs and 5.62 lakhs respectively.

### **Plant Protection:**

The crop damage occurs due to pest and disease, rat menace, weed etc. The loss due to pest and diseases is estimated at around 20 per cent. Hence, with a view to protect the crop from pests and diseases, the State adopts Integrated Pest Management Technology in farmers' fields. The major pests like stemborer, leaf folden, in paddy, boll worm, white fly, green jassids in cotton, red hairy caterpillar, leaf miner and prodenia in groundnut, pod borer in pulses and which had caused several damages in 1990s were brought under control in the State. However, the application of pesticides is being advocated as and when it exceeds the tolerance limit.

Under plant protection, in the case of food crops, the area treated against pests had declined from 28.56 lakh hectares in 2007-08 to 24.67 lakh ha. in 2008-09 whereas in the case of non-food crops, the area treated had marginally increased from 11.93 to 11.95 lakh ha. during the two years. Likewise, the area treated against disease had accelerated from 13.32 lakh hectares in 2007-08 to 17.49 lakh hectares in 2008-09 in respect of food crops. For non-food crops, the area treated against disease was 7.55 lakh ha. and 6.77 lakh hectares during the respective years. Further, under plant protection, the area in which seed treatment was carried out had increased from 25.05 lakh ha. in 2007-08 to 31.42 lakh ha. in 2008-09, the increase being 25.4 per cent. The rat menace was controlled in an extent of 8.46 lakh ha. in 2007-08 and 8.00 lakh ha. in 2008-09. In the State, an extent of 7 lakh ha. each was covered under weed control during the two years under reference. Of the total area covered under plant protection, irrigated area accounted for 59 per cent and the rest was unirrigated area.

In Tamil Nadu, under IPM technology, the plant protection chemicals are supplied through retail outlets of Government (880 tonnes), private (8610 tonnes) and cooperatives (1309 tonnes) and a total quantity of 10799 tonnes was supplied during 2007-08 and 2008-09 respectively. Of the estimated requirement of 6500 MT, 6461.67 MT in 2007-08 and 6408.47 MT in 2008-09 were distributed. Turning to liquid distribution, 5.89 lakh litres was distributed in 2007-08 as against 4.00 to 6.00 lakh litres. Further, technical grade material was being supplied to the tune of 2.13 lakh tonnes in 2007-08 and it had marginally improved to 2.32 lakh tones in 2008-09.

### **Agricultural Technology Management Agency (ATMA):**

The State is implementing the 'Agricultural Technology Management Agency' (ATMA) as a support to the State extension programme. It is implemented in all the districts except the Nilgiris and Chennai covering 381 blocks. The funds are shared between the Government of India and State in the ratio of 90:10. Under ATMA Scheme, the Tamil Nadu Watershed Development Agency (DWDA) undertakes various activities like training, demonstration, group formation, capacity building and providing revolving funds for income generating activities. During 2008-09, an amount of Rs.12.66 crores was funded by Government of India for the scheme.

### **Crop Insurance:**

With the aim of providing financial support to the farmers during the times of crop failure occurring either due to natural calamities or pests and disease and also for adopting the progressive farming, high value inputs and highest technology in agriculture, the National Agricultural Insurance Scheme (NAIS) was being implemented in the State since Kharif 2000.

Under the scheme, food crops (cereals, millets and pulses), oilseeds, sugarcane, cotton, annual commercial / annual horticultural crops are covered. The State provides 50 per cent as premium subsidy for both small and marginal loanees and non-loanees during 2008-09. The total quantum of subsidy had increased from Rs.15 crores in 2007-08 to Rs.40 crores in 2008-09. In addition to the State's subsidy, the Government of India also had provided five per cent subsidy for small and marginal farmers.

**Table – 12: Crop Insurance**

<b>Sl. No.</b>	<b>Item</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
1.	Area covered (lakh hectare)	4.40	8.58	7.27
2.	Farmers covered (No.)	316387	557481	628792
3.	Sum insured (Rs. lakhs)	50437.30	95084.34	165903.71
4.	Premium (Rs. lakhs)	1163.59	2066.71	3459.99
5.	Total claims (Rs. lakhs)	943.61	27955.50	15407.27
6.	Claims paid (Rs. lakhs)	943.61	26761.78	65407.27

*Source: Agriculture Insurance Company of India Ltd., Chennai – 10.*

Under crop insurance, the area coverage had improved from 4.40 lakh ha. in 2006-07 to 8.58 lakh ha. in 2007-08 and came down to 7.27 lakh ha in 2008-09. However, the number of farmers covered had increased from 5.57 lakhs in 2007-08 to 6.29 lakhs in 2008-09. The total sum insured had increased from Rs.95084 lakhs to Rs.165903 lakhs

during the respective years. The total premium collected had also accelerated from Rs.2066.71 lakhs in 2007-08 to Rs.3459.99 lakhs in 2008-09 and the claims paid to the farmers accounts for Rs.26762 lakhs and Rs.65407 lakhs respectively.

### **Agricultural Marketing:**

Agriculture is dependent on marketing support and thereby minimizes the risk of the farmers besides getting an assured and fair price for ensuring a remunerative return to them. The market intelligence has a pivotal role to play to make awareness and sales promotion. The State had taken stringent measures for regulating trade of agricultural produce most effectively and had introduced new technologies to reduce post harvest losses by grading, value addition, packaging, processing, timely availability of information and transportation.

Thus, agricultural marketing plays an important role in fostering and sustaining the tempo of rural economic development. The State had started the prime activities like Agri-Export, Post Harvest Management, Food processing, etc. A market fee of one percent is being collected from the traders by the Market Committee for the developmental activities.

As one of the major activities of Agricultural marketing, the State had established 153 Uzhavar Sandhai in the State. Of this 141 Uzhavar Sandhais are functioning well in advance in the State. In these Uzhavar Sandhais, on an average, 1609 MT of fruits and vegetables were sold every day by 7524 farmers worth of Rs.191.77 lakhs. This had benefited 2.72 lakh consumers per day during 2008-09.

To facilitate marketing of agricultural produce 21 Market Committees are functioning in the State. In addition to this, 277 Regulated Markets and 144 Rural godowns are functioning and ensured the competitive and remunerative prices under Market Committees. Further 15 check posts existing under Market Committees had been abolished for the free movement of agricultural produce.

Under “Agmarketnet”, a Centrally Sponsored Scheme, 184 regulated markets and 21 Market Committees were provided with internet connectivity for the effective price dissemination among farmers through Agmarketnet website. During 2008-09, 17.73 lakh MT of agricultural produce worth of Rs.6428 crores was sold by the farmers through Regulated Markets.

To avoid distress sales on account of price fall, pledge loan has been issued to the small and marginal farmers. The farmers were allowed to keep their produce in the godowns of Regulated Markets for a period of six months at free of cost and avail pledge loan of 75 percent of the total value of the produce to the maximum limit of one lakh rupees. The pledge loan was being extended to traders also at the rate of 9 percent. During 2008-09, an amount of Rs.1670.48 lakh at the rate of 5 percent to 2611 farmers and Rs.554.55 lakh at the rate of 9 percent was issued to the traders in the State.

The total value of agricultural produce transacted through agricultural marketing co-operatives had witnessed a dip from Rs.1108.24 crore in 2007-08 to Rs.865.44 crores, which was mainly due to plummeted sale of sugarcane in the review year by 40 percent over 2007-08. However, the value of other agricultural produce had witnessed an

improvement in 2008-09 over 2007-08, foodgrains by more than 200 percent, cotton by 6.0 percent, chillies and tamarind by more than 100 percent, spices by 68.9 percent and oilseeds by 18.2 percent.

**Table - 13 : Value of Agricultural Produce Sold by Marketing Co-operatives**  
(Rs. crores)

Sl. No.	Crop	2007-08	2008-09
1.	Foodgrains	5.36	21.05
2.	Cotton	98.58	104.54
3.	Chillies and Tamarind	1.27	2.96
4.	Sugarcane	834.19	500.62
5.	Spices	32.11	54.24
6.	Oilseeds	45.50	53.80
7.	Others*	91.23	128.23
	<b>Total</b>	<b>1108.24</b>	<b>865.44</b>

- \* - includes potato, vegetables and rubber.

Source: The Registrar of Co-operatives, Chennai- 10.

### Crop loss:

The crop loss due to flood and drought is a common phenomina in the state. Normally, due to flood the crop like paddy, coarse cereals, pulses, cotton, sugarcane and oil seeds submerged in flood water during north east monsoon.

**Table – 14: Estimation of loss of Agricultural Area and Value of loss of Production due to Natural calamity**

Calamity (flood) Year	Area (ha.)		Total	Production (Rs. In lakhs)		Total
	Food crops	Non-food crops		Food crops	Non-food crops	
2007-08	459555	54465	514020	82655	18559	101215
2008-09	529898	47156	577054	189727	11609	201336

Source: Department of Agriculture, Chennai-5.

The total crop loss due to flood in the state was estimated at 5.14 lakh ha. in 2007-08 and 5.77 lakh ha. in 2008-09. Due to the crop damage, the value of loss of production was to the tune of Rs.82655 lakh of food crops and Rs.18559 lakh of non-food crops in 2007-08. During 2008-09, the value of loss of production of food crops had further increased to Rs.189727 lakh and Rs.11609 lakh of non-food crops respectively was affected in flood. It is a welcome feature to note that for the crop loss and value of loss of production due to flood, as a relief measure, the state had sanctioned Rs.21406 lakhs in 2007-08 and Rs.40441 lakhs in 2008-09 and benefited 7.66 lakh and 8.61 lakh farmers for the respective years.