

III. Agriculture

Viewed in terms of output and employment, agriculture is the most important activity in the Territory. In 1961, this sector produced 28.6 per cent of the Territory's income and employed 44 per cent of the workers. In 1971 there were in all 62,934 workers engaged in agricultural activities either as cultivators or agricultural labourers. This forms 44.34 per cent of the total working force showing an increase of agricultural workers in the Territory. The net value of agricultural output in 1961 was Rs. 754 per hectare of gross cropped area and Rs. 574 per agricultural worker. This rate of productivity was possible due to superior cropping pattern, dominated by high value crops such as rice, sugar-cane, ground-nut, coconut, etc. However, taking the total population of the Territory, the per capita income from agriculture amounted to only Rs. 95 as pressure of population was high and the per capita cultivated land was low.* The net sown area per capita amounted to only 0.09 ha. and the net area sown per agricultural worker amounted to only 0.535 hectare.** Thus in the agricultural sector, the main limiting factors are institutional which include lack of land reforms and the small size of the holdings. 29

The following table furnishes data of total workers, agricultural workers, per capita net area sown and density of agricultural workers per 100 hectares of net sown area for the four regions of the Territory according to the 1971 census :

Area	Total workers	Agricultural workers (cultivators & agricultural labourers)	% of agricultural workers to total workers	Net area sown in hectares	Per capita net sown area in hectares		Density of agricultural workers per 1000 hectares of net sown area
					Total population	Agricultural workers	
Pondicherry	.. 1,05,203	47,125	44.80	19,032	0.056	0.404	248
Karaikal	.. 29,405	14,419	49.03	10,953	0.109	0.760	132
Mahe	.. 4,843	513	10.59	734	0.032	1.431	70
Yanam	.. 2,474	877	35.45	804	0.097	1.567	109
Territory	.. 1,41,925	62,934	44.34	31,523	0.067	0.501	200

* Rs. 146 in Tamil Nadu.

** The comparable figure for Tamil Nadu was 0.13 ha.

It could be seen that Pondicherry has the highest density of 248 agricultural workers per 100 hectares of net area sown followed by Karaikal where the density is 132. The high density of agricultural workers in Pondicherry region may be attributed to the diversified cropping pattern of the region and higher proportion of double cropped area to net area sown as compared to the other regions. Mahe has the lowest density of agricultural workers (70) while in Yanam it works out to 109 workers per 100 hectares of net sown area.

Karaikal region, which is predominantly agricultural in character, has the highest proportion of agricultural workers to total workers viz. 49.03 per cent. followed by Pondicherry with 44.80 per cent. In Mahe, where cultivation is not an important occupation, only 10.59 per cent. of the working force are agricultural workers. Although the per capita net area sown is the lowest in Mahe due to very high density of population, the net sown area per agricultural worker to the maximum (1.737 ha.) due to the low percentage of agricultural workers to total workers. In Yanam the net area sown per agricultural worker works out to 1.396 ha.

Season and crops :

The Union Territory is benefited both by south-west monsoon and the north-east monsoon. Naturally, the pattern of agricultural operations is determined by the south-west monsoon which lasts from June to September and the north-east monsoon which lasts from October to December. This is the most important season which greatly influences the kharif crops. Pondicherry, Karaikal and Yanam regions, situated on the east coast, are mainly benefited by this monsoon. More than 50 per cent. of the annual rainfall in these regions is accounted for by this monsoon. The cultivation of a second crop of paddy is very much influenced by the rainfall during this season. The cold weather season which normally lasts from January to February is mostly dry. From March to May is the hot weather season. Mahe region, situated in the west coast, receives the major portion of its annual rainfall during the south-west monsoon. Given below is a statement of different crops and the names of the seasons along with the period of sowing and harvesting :

Region	Crop	Nature of crop	Period of	
			sowing	harvesting
(1)	(2)	(3)	(4)	(5)
Pondicherry	Paddy	Kuruvai (Sornavari)	May-July	Aug.-Oct.
		Samba Navarai (Kar)	Aug.-Nov. Feb-March	Dec.-March May-June
	Ragi	Irrigated (Iravai)	Jan.-Feb.	April-May
	Ragi	Irrigated	May-June	Sept.-Oct.
	Cambu	Dry	June-July	Sept.-Oct.
	Cholam	Dry	July-Aug.	Nov.-Dec.
	Ground-nut	Rainfed	July-Aug.	Nov.-Dec.
	Ground-nut	Irrigated	Jan.-Feb.	May-June
	Gingelly	Dry	Jan.-Feb.	March-April
	Redgram	Dry	July-Aug.	Nov.-Dec.
	Blackgram	Dry	Jan.-Feb.	April-May
	Greengram	Dry	Jan.-Feb.	April-May
	Sugar-cane	Irrigated	Oct.-April	Nov.-May
	Onion	Samba Kar	Sept.-Oct. April-May	March-April July-Aug.
	Cotton	Irrigated	Jan.-March	July-Sept.
		Rainfed	Sept.-Oct.	Jan.-Feb.
	Bananas	Irrigated	July-Aug. Jan.-Feb.	May-June Dec.-Jan.
	Coconut	Rainfed	Dec-Feb.	

Karaikal	Paddy	Kuruvai	May-June	Sept.-Oct.
		Samba	July-Sept.	Dec.-Jan.
		Thaladi	Oct.-Nov.	Feb.-March
	Pulses		Jan.-March	April-May
Mahe	Paddy	I Crop	April-May	Sept.-Oct.
		II Crop	Aug.-Sept.	Jan.-Feb.
	Coconut		June-Oct.	
Yanam	Paddy	Dalwa	Aug.-Sept.	Dec.-Jan.
		(Rainfed)		
		Sarva	July-Aug.	Dec.-Jan.
		(Irrigated)		
	Ragi	Irrigated	Sept.-Oct.	Dec.-Jan.
	Cholam	Rainfed	Sept.-Oct.	Dec.-Jan.
	Chilly	Rainfed	Sept.-Oct.	March-April
	Coriander	Rainfed	Sept.-Oct.	March-April
	Mustard	Rainfed	Sept.-Oct.	March-April
	Tobacco	Rainfed	Oct.-Nov.	Feb.-March

In Pondicherry region, the crops cultivated are cotton, ground-nut and cholam in dry lands. The major crop is paddy, followed by ground-nut (irrigated). In wet lands, a crop of paddy is followed by another crop of paddy and then again by another paddy or ragi or ground-nut where the soil is loamy. Paddy is followed by the cultivation of green manure in certain parts of this region. In Pondicherry region the raising of ragi along with irrigated ground-nuts is a common practice in all garden land areas.

The Territory, on account of its scattered set-up, consists of different types of soils ranging from light sandy to stiff clay and alluvium. The alluvial soil is very fertile and is well suited for paddy which explains the predominance of this crop in the Territory. But otherwise, the soil is said to be lacking in phosphoric acid. Another characteristic of the soils is that they are generally very thirsty.

Soils :

For purposes of survey and settlement, soils in the Territory are divided into five categories viz. (1) the alluvial and exceptional consisting of rich island soil as well as garden and other permanently improved soils of more than ordinary productiveness, (2) the *kalar* or black cotton soil, (3) the red ferruginous soil originating from sandstone, laterite, etc. (4) the calcareous soil originating from the underlying strata of chalk or lime, (5) the arenaceous soil consisting of more or less pure sand and lying as a rule on the sea coast. These five categories of soils are further divided into classes and sorts. The division into classes viz. clayey, loamy or sandy is made depending on the proportion of sand and clay in it. The division into sorts is based on the quantity of organic matter or the presence of other valuable or deleterious ingredients in it, such as salt, etc.

No systematic soil studies to establish the soil groups have so far been conducted in the Territory.³⁰ However, from the result of the analyses of the soil samples tested in the Soil Testing Laboratory in Pondicherry, some inferences were drawn on the general fertility status and soil condition of these soils. Soil fertility maps for Karuvadikkuppam and Tattanchavadi have been so far prepared.

Pondicherry region : The main soil types met with in Pondicherry region are red ferrallitic, black clayey and coastal alluvium. Further variations have also been recognised in these three main soil types. Thus, in the coastal alluvium, the saline tracts of the Marakkanam creek, the coastal sand dunes, both newer and older, have been distinguished. These are introduced differences on account of the textures such as sandy, loamy and clayey loam alluvium. Similarly in the black soils, two types are met with, namely, the marshy and the other with carbonate efflorescence.

Soil reaction in 75.7 per cent. of soils is neutral, 21 per cent. medium alkaline, 1.8 per cent. alkaline and 1.4 per cent. medium acidic.³¹ The soluble salt in 96.6 per cent. of the soils tested is in the harmless range. The soil texture varies from light to medium being 45 per cent. and 55 per cent. respectively. The nutrient index with respect to available nitrogen, phosphorus and potash is low.

Karaikal region : The region of Karaikal consists almost entirely of the coastal alluvium which can further be subdivided into sandy, sandy loam and clay loam. Soil reaction in 76.7 per cent. of the soils tested is neutral, 1.4 per cent. medium alkaline, 0.8 per cent. alkaline and 21.1 per cent. acidic.³² The soluble salts in 85.4 per cent. of the soils tested are in the harmless range. The soil texture varies from light, medium to heavy, being 20 per cent. 30 per cent. and 50 per cent. respectively. The nutrient index with respect to available nitrogen and phosphorus is low and medium in respect of potassium.

The coastal alluvium of Karaikal is suitable for the cultivation of paddy and pulses. The sandy loams and sandy belt are found suitable for the cultivation of cashew and casuarina.

Mahe region : Mahe region on the Malabar coast is covered by typical red laterite soil of Malabar. Places are not uncommon wherein sandy loam and clay loam soils are met with.

The soil reaction in 96 per cent. of the soil is neutral, 4 per cent. medium alkaline. Almost 95 per cent. of soils in the region are free from salinity hazards. The soluble salts in 93.0 per cent. of the soils tested are in the harmless range. The soil textures vary from light to medium, being 40 per cent. and 60 per cent. respectively. The nutrient index in respect of available nitrogen, potash and phosphorus is low, medium and low respectively.

The red laterite soil is covered by semi-dry crops like tapioca, etc. The sandy loam and clay loam soils are covered by paddy. Coconut and arecanut are the major crops grown in the region.

Yanam region : The soil met with in Yanam region is the alluvial type. The soil reaction in 43 per cent. of the soil is normal, 53 per cent. medium alkaline and 4 per cent. alkaline. The soluble salts in 91.0 per cent. of the soils tested are in the harmless range. The soil texture varies from medium to heavy being 61 per cent. and 39 per cent. respectively. Nutrient index in respect of available nitrogen and phosphorus is low and high in respect of potash.

The alluvial soil of Yanam is suitable for the cultivation of paddy, tobacco, chilly, coriander, fenugreek, etc.

Area under various crops :

The total area sown under all crops (food and non-food crops) is 50,617 hectares (1970-71). Food crops alone accounted for 82.9 per cent. whereas non-food crops covered 17.1 per cent. of the total cropped area. By 1975-76, the total area sown under all crops increased to 55,954 ha. Food crops alone accounted for 83.3 per cent. while non-food crops covered 16.7 per cent. of the total cropped area.

The following table shows the cropping pattern in this Territory in 1970-71 indicating the relative importance of the area under principal crops to total cropped area :

Food crops	Percentage of the area under the crop to the total cropped area		Non-food crops	Percentage of the area under the crop to the total cropped area	
	1970-71	1975-76		1970-71	1975-76
Paddy	60.3	58.0	Cotton	0.6	3.7
Ragi	3.6	5.0	Ground-nut	8.6	7.5
Cumbu	3.9	1.5	Gingelly	1.4	1.3
Other millets	0.6	0.6	Coconut	3.2	2.9
Pulses	6.7	10.6	Betel vines	0.1	3.2
Sugar-cane	3.1	3.0	Other non-food crops	3.2	1.2
Other food crops	4.7	4.6			
Total food crops	82.9	83.3	Total non-food crops	17.1	16.7

In 1961-62, 78 per cent. of the cropped area in the Territory was covered by food grains, paddy alone accounting for 65 per cent. During 1970-71 the percentage of area under food crops to the total cropped area was the highest in Karaikal region being 93.1 per cent. By 1975-76 it increased to 98 per cent. In Pondicherry region 78.4 per cent. of the total cropped area was accounted for by food crops. By 1975-76, the percentage of area under food crops increased to 85.4 per cent. As much as 72 per cent. of the cropped area was under paddy. A number of other important cash crops such as sugar-cane, coconut, ground-nut and cotton are also being grown here. In Mahe the cropping pattern is highly biased in favour of non-food crops which account for 64.1 per cent. of the gross area sown during 1970-71. By 1975-76 it increased to 72 per cent. Per capita productivity in this region is higher because of the prevalence of cash crops. In Yanam the area under food crops represents 72 per cent. of the gross area sown. The cropping pattern is thus 'heavily biased in favour of food crops.'

1. Details of area in hectares under cereals in each region of the Territory during 1975-76.*

Region	Paddy I crop	Paddy II crop	Paddy III crop	Total	Cholam	Cumbu	Ragi	Varagu	Other millets	Total cereals
Pondicherry	3,010	11,290	3,050	17,350	250	850	3,025	105	20	21,600
Karaikal	3,750	10,850	50	14,650	—	—	—	—	—	14,650
Mahe	40	40	—	80	—	—	—	—	—	80
Yanam	460	—	—	460	—	—	—	—	—	460
	7,260	22,180	3,100	32,540	250	850	3,025	105	20	36,790

2. Details of area under pulses in each region during 1975-76.

Region	Redgram	Blackgram	Greengram	Horsegram	Other pulses	Total pulses
Pondicherry	—	462	220	35	120	837
Karaikal	—	3,170	1,910	—	10	5,090
Mahe	—	—	—	—	—	—
Yanam	25	15	20	—	—	60
	25	3,647	2,150	35	130	5,987

* Statements 1 to 7 furnished by the Directorate of Agriculture.

3. Details of area in hectares under vegetables in each region during 1975-76.

Region	Tapioca	Onion	Sweet potatoes	Other vegetables	Total vegetables
Pondicherry	660	10	295	325	1290
Karaikal	15	—	5	85	105
Mahe	25	—	—	—	25
Yanam	—	10	—	10	20
Territory	700	20	300	420	1440

4. Details of area in hectares under fruits in each region during 1975-76.

Region	Bananas	Citrus	Mangoes	Guava	Grapes	Others	Total fresh fruits	Cashew nuts	Total fresh & Dry)
Pondicherry	130	—	250	20	—	—	400	305	705
Karaikal	20	—	50	—	—	—	70	5	75
Mahe	10	—	10	—	—	—	20	—	20
Yanam	—	—	—	—	—	—	—	15	15
Territory	160	—	310	20	—	—	490	325	815

5. Details of area in hectares under spices and condiments during 1975-76.

Region	Betelnut	Chillies	Coriander	Pepper	Tamarind	Total condiments and spices	Total food crops
Pondicherry	..	70	5	—	60	135	24,567
Karaikal	..	15	—	—	20	35	19,955
Mahe	..	—	—	15	—	85	210
Yanam	..	40	45	—	—	85	640
Territory	..	125	50	15	80	340	45,372

6. Details of area under oil-seeds during 1975-76.

Region	Ground-nut	Coconut	Sesamum	Other oil-seeds	Total oil-seeds
Pondicherry	..	740	750	10	5,450
Karaikal	..	240	25	—	440
Mahe	..	550	—	—	550
Yanam	..	120	5	—	250
Territory	..	1,650	780	10	6,690

7. Details of miscellaneous crops during 1975-76.

Region	Cotton	Sugar-cane	Betel vine
Pondicherry	2,120	1,707	65
Karaikal	—	—	—
Mahe	—	—	—
Yanam	—	—	—
Territory	2,120	1,707	65

Crops grown in the Territory :

Pondicherry region:

Paddy : Paddy is the principal crop grown here. It is cultivated during three seasons known as *kuruvai* (over a limited area), *samba* and *navarai*. The transplantation method is mostly followed for paddy cultivation. The per hectare yield in Pondicherry was estimated to be slightly lower than that in the adjoining areas of Tamil Nadu.³³

(i) *Kuruvai* : Only short duration crops are grown during *kuruvai* season otherwise called *sornavari* in Pondicherry region. The varieties cultivated are IR-20, and CO-29. Vaigai, Kaveri, Kanchi, Rathna, CO-33 (Karuna), Kannagi, Triveni, ADT-31 and Amaravathi are the improved varieties recently introduced. Nurseries are raised sometime during the first week of June and the harvest is completed by September.

(ii) *Samba* : Long duration varieties such as CO-25, DCP-1, medium duration varieties like IR-8, IR-20, Ponni, Jaya, etc. are cultivated during the *samba* season. Bhavani, Bhagavathi and Culture 13943 are the new introductions in this region. CO-25, Ponni, IR-20 are high-yielding strains for this season. Nurseries are raised from August onwards and harvest completed during February-March.

(iii) *Navarai* : Otherwise called 'summer paddy', it is cultivated with the help of irrigation by pump sets. Short and medium duration paddy varieties like IR-8, IR-20, Bhavani, Rathna, Kaveri, Kanchi, CO-29, Vaigai are generally grown. Vaigai, IR-8, Jaya, IR-20 CO-29, ADT-31 are the high-yielding strains cultivated during this season. This crop will be sown during February-March and the harvest will be over by June-July.

Cumbu/Bajra : Cumbu is normally cultivated under irrigated condition. In some parts, however, it is cultivated as rainfed crop. Being of short duration type, this crop has become popular in this region. This crop is raised generally in dry lands as a kharif crop during the south-west monsoon season. Generally it comes up well in any type of soil. Until very recently a local variety of cumbu known as Nattu Cumbu alone was grown. With the introduction of the High-Yielding Variety Programme, farmers are taking to high-yielding strains such as HB-1 Cumbu, HB-3, HB-4, NHB-4, NHB-5 and PHB-10 with advantage.

The area under this crop has also shown a steady increase under the impact of the Multi-cropping Programme. The ryots until recently used to broadcast the seeds. With the popularisation of the package of practices under the High-Yielding Variety Programme, farmers are increasingly adopting the transplantation method after raising nurseries with hybrid seeds supplied.

Ragi : Ragi which comes up well in any type of soil is mainly cultivated in summer under irrigated condition. In some parts, however, it is grown as a rainfed crop. Generally, nurseries are prepared in dry conditions, and the seedlings are then transplanted to the main field. Cultivation of the crop is confined chiefly to Pondicherry region and the crop is sown mostly in dry lands irrigated by tube-wells and wells. It ranks third among the principal crops cultivated in the region. This is one of the crops giving good revenue to the ryots with comparatively less care and irrigation. The local strains are Perum Ragi, PLR-1 and Arupatham Kodai. The last one is a short duration variety. There is now a trend to replace the above varieties by the new ragi varieties, namely CO-7 and Sarada which give more yield compared to others, besides being short duration varieties. Ragi is one of the crops covered by the Multi-crop Programme and the Intensive Agricultural Area Programme. This has been found adaptable as a mixed crop and is grown with ground-nut. After maturity of the crop and before harvest, ground-nut seeds are dibbled or green manure seeds are broadcast amidst the standing crops so that when the ragi crops reach the harvesting stage, the intercrop is full grown, thereby saving time and cost of preparatory cultivation. Ragi is sought after by the poorer sections of the people in this region.

Jowar : This crop comes up well in wide soil conditions such as sandy types. Until very recently this was popular as a rainfed crop in some parts of the region. With the introduction of the High-Yielding Varieties Programme, the ryots are using hybrid varieties, such as CSH-1, under irrigated condition, and are following the transplantation method of cultivation. CSH-5 is the newly introduced variety for cultivation which is gradually replacing the other CSH varieties. The local people are not themselves habitual consumers of this crop. Added to this, there is no steady market for this grain. As such, the cultivators are not assured of any steady return from its cultivation.

Maize : Newly introduced in the region, the crop has become popular because it is a short duration and high-yielding crop. It does not, however, enjoy a steady market. Being of short stature, the plants stand up to the rigours of cyclone or heavy rain.

Millets : The area under other millets such as *thinai*, *varagu* and *samai* is very small. These millets are cultivated in dry lands during the kharif season mostly as dry crop.

Pulses : Blackgram and greengram are the main pulse crops being grown in rice fallows during summer in Pondicherry region. It is popular in Bahur and its surroundings. The local variety being grown is known as *kuthu ulundu*. The local variety is now replaced by ADT and CO high-yielding varieties of blackgram and greengram. The short duration varieties, T 9 Black gram and Bisaki moong (Anjugam) gram are also now being introduced in the pulse growing area. These two varieties are gaining popularity among the farmers. Redgram is also being grown in Madagadipattu area only to a small extent, mostly as a mixed crop.

Fruit cultivation : The important fruits grown in this region are mango, guava and cashew. The area under fruit crops has been showing an increase from year to year. Fruit trees generally are grown on lands which are mostly uneven and where other crops cannot be grown. Vegetable seeds as well as fruit plants produced in the Madagadippattu Orchard-cum-Nursery are made available to the ryots. The common banana varieties grown in this region are—*poovan*, *monthan*, *pachainadan*, *Rasthali*, *robusta* and dwarf *cavendesh* varieties of banana were newly introduced in the region. These varieties are not only quick bearing but also give good yield. As bananas do not enjoy a steady market, farmers show some reluctance to bring larger area under these varieties. Banana is grown in Ariyankuppam, Tirubhuvanai and Tiruvandarkovil. Cashew is mainly grown in Kalapet. Mango is grown in Kalapet, Pillaichavadi and Edaiyarpalaiyam.

Vegetables : The main vegetable-growing seasons in this region are *aadi pattam* (August—September) and *thai-pattam* (January—February). Vegetables are grown in the rice fallows also. They are grown as an intercrop in groves as well. The main types grown are brinjal, bendai, pumpkin, tomato, different types of gourds, chillies and greens. Unlike in other places, the ryots in this region grow vegetables in large areas for commercial purpose.

The main vegetable growing areas are Thengathittu, Nonanguppam, Purnankuppam, Edaiyarpalaiyam, etc. In Thengathittu, brinjal and onion are mainly grown. In other areas, tomato, brinjal, bendai and greens are mainly grown.

Tapioca (Maravalli) : According to an estimate prepared in 1957, about 1,656 tons of tapioca were annually produced in Pondicherry region alone. A good portion of it was used for human consumption while the rest was bought by sago manufacturers of Salem. It was then estimated that production can be increased to 7,000 tons by bringing more land under tapioca cultivation in and around Pondicherry. In poor light soils as well as in soils where moisture retentive capacity is too low, tapioca crop is taken up. In times of scarcity of food grains, tapioca is used as the staple diet of the people.

Tapioca is now mainly grown in Villiyanur, Mannadipattu and Nettappakkam Communes although formerly it used to be grown in Ariyankuppam and Bahur Communes. Being the most important tuber crop grown in the region, a programme was launched in 1974-75 to increase the area under the crop. By 1976, in all 700 ha. were brought under this crop. The estimated production was 14,000 tonnes. The M. 4 and H. 165 are the newly introduced high-yielding varieties.

Sweet potato (Sarkaraivalli) : This is another tuber crop grown in garden lands. The ridge and furrow method is generally followed for its cultivation. This crop is cultivated in about 300 ha. New varieties are being introduced.

Condiments and spices : This crop is taken up in garden lands of this region. Nurseries are raised first in dry condition and the seedlings are transplanted to the main field. Application of chemical fertilisers and plant protection measures are increasingly adopted by the ryots to increase the yield of this crop. Production is too low even to meet the Territory's own requirements.

Oil-seeds : Ground-nut is the major oil-seed grown in this region. Owing to its profitability, ryots show special interest in the cultivation of this crop. Ground-nut is sown as irrigated crop during January—March, and as dry crop during July—August and harvested in November—December. This crop is taken up under dry as well as irrigated condition in this region.

Dry ground-nut crop : About 663 hectares are under rainfed ground-nut crop. Rainfed cultivation of ground-nut is carried on only in parts of Ozhukarai and Villiyanur Communes where the lands are slightly elevated and devoid of irrigation facilities. Ground-nut seeds are sown behind country plough in the plough furrows in the month of July or August when the showers of south-west monsoon are received. The soil gets moist enough for sowing. For

further moisture required for its vegetative phase, this crop depends on rains only. The success or failure of the crop depends on the vagaries of the monsoon. But this fear was dispelled by conducting manurial demonstrations on dry ground-nut. The ryots showed some reluctance to apply chemical fertilisers to dry ground-nut. Recently the foliar application of urea on dry ground-nut was also demonstrated. Cultivators are slowly growing fertiliser conscious. In some areas, ragi or cumbu or pulses are grown as mixed crop alongwith rainfed ground-nut crop. TMV-2, TMV-7 and TMV-9 among the bunch varieties and TMV-3 among the spreading varieties are the popularly cultivated varieties in this region in both dry and irrigated conditions.

A much more extensive area in Nettappakkam, Mannadipattu and Bahur is under irrigated ground-nut crop. Being grown in controlled conditions with the adoption of improved package of practices, irrigated ground-nut is looked upon as a paying proposition among the growers of this region. Wherever water is available after the *samba* harvest, ground-nut is usually sown. After one or two shallow ploughings, the field will be laid out into beds with irrigation channels. After soaking the field, seeds are dibbled with the help of hand hoes. In some places spreading varieties of ground-nut are sown amidst the standing crops of ragi a little before harvest. When the vegetative growth takes place, an intercultivation is given to arrest weed growth and to aerate the soil. This facilitates proper root development. The crop is watered as and when necessary i.e. just to provide a wetting without allowing water to stagnate in the field. At the flowering stage, the soil around the plants is raked by hand hoes and collected around the plants to facilitate normal peg formation. Generally dusting and spraying of pesticides are being carried out upto the flowering stage. The crop is harvested when the vegetative part turns yellowish and the inner surface of the shell turns blackish. Harvest is carried out by uprooting the plants.

Coconut : It is one of the major oil-seed crops in this region. An area of 1,650 hectares is under coconut groves producing about 16.7 million nuts per year. New plantings are carried out in the month of June. In big field-bunds coconut is grown as border crop. Along road sides planting is taken up by the Municipalities. In 1956 it was estimated that 96,00,000 coconut husks, out of which 675 tons of fibre can be produced, were available annually in the region. A good portion of this was exported outside this settlement and the rest consumed locally. The barks are retted in the backwater area

near Sanyasikuppam Manaveli. About 4/5 of the total quantity of fibre (675 tons) produced in the area was exported to centres like Vellore, Katpadi, Ulundurpettai and Cuddalore.³⁴

There are private coconut nurseries which supply coconut seedlings to the growers. Such seedlings do not have the desired quality. A Coconut Nursery is attached to the State Seed Farm, Madagadippattu, where seed nuts of mother palms with established pedigree records in the southern districts of Tamil Nadu are sown and the seedlings thus raised are distributed to ryots at cost price. In some parts of this region, crops such as tapioca, vegetables, ground-nut, etc. are raised in-between the rows of coconut trees. Fruit plants of short stature are also cultivated in-between the rows of coconut trees. Application of fertilisers is carried out in *topes* where there is adequate water supply. Interculture is carried out once a year by manual labour or ploughing. In certain villages, cotton waste as well as farm waste are applied and ploughed with a view to giving good aeration in the soil layers and improving the structure and moisture retentive capacity of the soil.

Being a wet area, tapping of toddy is extensively followed which considerably affects the yield of coconuts. A good portion of the coconuts are used for domestic consumption with the result that very little is left for oil extraction. The available coconut fibre leaves enough scope for industrial utilisation. The other secondary products such as shells and leaves are also utilised.

Sesamum : This crop is cultivated in 750 hectares in this region. Popular both as a dry and an irrigated crop, the irrigated crop is generally taken in summer. It is grown as a mixed crop along with pulses, ground-nut, dry cotton, etc. Harvesting is done by uprooting the plants. The plants are then dried up in the sun and beaten by sticks for separating the grains.

Green manure : In Pondicherry, growing of green manure crop before raising *samba* crop is commonly practised. Daincha is the common green manure crop being grown in this area. Government also encourages farmers in growing green manure crops.

Sugar-cane : Sugar-cane is an important commercial crop of this Union Territory. It is grown in Pondicherry region where alone facilities exist for crushing the canes. Prior to the establishment of the Sugar Mill in Pondicherry, the area under

this crop was very small. Whatever was grown here was sent to the sugar factory at Nellikkuppam.³⁵ Assured market facilities and attractive prices together with the availability of technical know-how from the Departmental side have all encouraged its cultivation in the region. In 1956-57, production of sugar-cane was estimated at 3.256 tons. The area under sugar-cane during 1956-57 was 73.2 hectares. This crop is grown in almost all communes of this region.

It is generally cultivated in rotation with paddy in wet lands. After the harvest of paddy crop, the land is ploughed deep by tractor or other ploughs. After giving the required number of ploughings to obtain a good tilth, trenches are formed together with irrigation channels. For covering larger areas, the ryots utilise ridge ploughs drawn by tractor. After forming ridges and furrows, they are mended with spades through manual labour. Since the soil type in this region is different from other parts, the method of planting is also different. Two budded or three budded sugar-cane setts are first sown in the furrows and the setts are covered with soil of 2.5 cm. to 5.0 cm. depth and watered. Irrigation is stepped up when all the setts sprout. Then onwards, irrigation is given at an interval of six to ten days depending upon the nature of soil, taking care that there is no stagnation of water in the fields. Harvesting is done after 10 to 12 months when the cane is required for milling purpose or after six to eight months when the cane is meant for seed setts. Generally seed setts are raised in separate nurseries or the top shoots of well grown canes are sometimes utilised. Seed canes fetch more price than mill canes. During the 1973-74 season, roughly 2,00,000 tonnes of cane were produced. A major portion of this was used by the sugar mill at Ariyur. The ordinary varieties are being replaced by improved varieties such as CO-658, CO-740, CO-853 and CO-6304. Among these, CO-658 was found better suited to this region and liked by the ryots. However, it has been losing ground in view of its susceptibility to red-rot disease.

Cotton : This is the main fibre crop cultivated in this region. The area under cotton is 283 hectares. This crop is taken up during summer under irrigated condition. Summer Cambodia cotton is grown in garden lands during the *masi-pattam* (February-March) season. This was introduced in Pondicherry by the French, and then spread to other parts of India as well. The ryots follow the ridge and furrow method of planting and the seeds are dibbled. Although Pondicherry is an important textile centre, the internal production of this fibre is inadequate to meet the local requirements. Moreover, lands

suitable for cotton growing is also not available. The main cotton growing areas in Pondicherry are Nettappakkam, Mannadipattu and Bahur. Nowadays M.C.U. 4, M.C.U. 5, P.R.S. 72 and Varalakshmi are mainly grown in this region. P.R.S. 72 is being cultivated in rice fallows in Bahur area.

Flowers : The main flower growing areas in Pondicherry are Mangalam, Thengathittu and some isolated pockets of the coastal areas and Sedarappattu. Jasmine, rose, crosandra, marigold, chrysanthemum are the flowers mainly grown. The farmers are finding it profitable.

Betel vine : It is grown in parts of Villiyanur and Ozhukarai Communes and enjoys a steady market.

Karaikal region :

The pattern of cropping, the economic standard and the agricultural pattern followed in this region are very similar to those of Thanjavur District. The cultivation seasons as well as irrigational conditions depend mainly on the release of water from the Mettur Dam. Generally water is available from June to January-February. As sources of irrigation dry up during summer, ryots are able to raise only two crops during the year. Growing a single crop of paddy is also not uncommon in this region. Hence the sinking of bore-wells and deep bore-wells in the region was encouraged. The partial success achieved in this endeavour has encouraged the ryots to take to a short duration crop during the summer season. The underground water tables met with at various places were mostly found to be saltish and unfit for irrigation purposes. In the areas adjoining Mayuram and Kumbakonam Taluks, water struck in the bore-wells was found suitable.

Apart from vegetables and fruits some varieties of pulses and spices, condiments and oil-seeds are cultivated in the region, although in terms of area covered by these crops, they are very insignificant.

Paddy : The paddy growing seasons are popularly known as *kuruvai*, *samba* and *thaladi*. With the onset of south-west monsoon and the release of water from the Mettur Dam, the *kuruvai* nurseries are prepared under wet condition. The general local varieties raised are ADT-3 and ADT-2, although ryots are

increasingly taking to high-yielding short duration strains such as Karuna, Kannagi, Triveni, ADT-31 and Amaravathi. Not much of fertilisers are applied to the *kuruvai* lands, as green manure extensively raised in the fields during summer are available for *kuruvai* planting. The crop comes to harvest by September—October.

Long and medium duration varieties are cultivated during the *samba* season. The main varieties grown are ADT-8, ADT-1, CO-25 and local strains such as Kunanga samba. High-yielding strains like Jaya and IR-8, IR-20, Ponni are slowly replacing those now in vogue. *Samba* lands are mostly single cropped as they lie starved of water during the months preceding the *samba* season so as to raise a *kuruvai* crop. Moreover, the *thaladi* season overlaps the *samba* season. After the *samba* harvest, pulses are sown in the rice fallows utilising the available moisture.

In the lands where *kuruvai* is cultivated, after the harvest of the *kuruvai* crop, long duration varieties such as CO-25, and medium duration varieties like IR-20 and Ponni are planted as second crop during the *thaladi* season. The nurseries for this crop are raised about a month before the harvest of *kuruvai* crop. The *thaladi* crop comes to harvest by February.

The *ottadai* crop is raised by mixing two varieties of different durations i.e. one of short duration and the other of long duration. The nursery is raised sometime in the month of June. The seedlings comprising both the varieties are then transplanted in the field. The short duration variety comes to harvest first, and this crop along with the foliage of the long duration variety is cut. After harvest, the stubbles of the long duration variety sprout and the earheads come to maturity by February. This system is followed only in low lying areas subject to water stagnation during October—November, as it is not possible to carry out preparatory cultivation for the second crop. One great advantage of this system is that the cost of labour and preparatory cultivation is only minimal.

Pulses : Pulses like greengram, blackgram, etc. are grown in rice fallows during summer. The ryots take to their cultivation with a view to putting to some use the land during summer. These crops also help to supplement their income from land. The succulent parts of pulses plants, left after the extraction of

grains, are utilised as green manure. Now the high-yielding varieties like ADT-1, CO-1, T-9 blackgram and ADT-1, CO-1, Anjugam-greengram have replaced the traditional varieties.

Vegetables : Such vegetables as brinjal, tomato, bendai, gourds and greens are cultivated more in garden lands and scatteringly in kitchen gardens and school compounds. Vegetable cultivation is not so popular in this region as in Pondicherry.

Coconut : This is the most popular oil-seed crop of this region. The ryots resort to intercultivation operations following the onset of the south-west monsoon.

Ground-nut : To a certain extent cultivation of ground-nut as rainfed crop in the months of November—December has been resumed recently. Local varieties and High-Yielding varieties like Pol-1, TMV-2, TMV-7 and TMV-9 are the main varieties of this region

Sunflower : Although the cultivation of sunflower was taken up by the ryots, it has been found unsuitable for cultivation in the Territory.

Mahe region:

The main crops cultivated here are coconut, paddy, banana, arecanut, pepper and mango.

Paddy : Paddy is cultivated only in a few patches in the region. The number of crops raised are three, two of which are of short duration and one of long duration.

The short duration crop known as *Viruppu* lasts from April—May to August—September. Sowing is done in dry nurseries either by broadcasting or by dibbling the seeds behind the plough or after digging with *manvetties*. The local varieties are known as *thonnooran*, *anakkodan*, *vadakkan*, *keeripala*, *parambukottan*. The improved varieties introduced earlier were PTB-5, PTB-8, PTB-9, PTB-28, PTB-32, IR-8 and MTM-3.

The second crop season which is called *chitteni* lasts from September—October to December—January. This is a transplanted crop for which nurseries in wet condition are raised. While *chitteni* is a popular local variety, the improved varieties are PTB-4, PTB-20 and PTB-21. Now IR-8, Jaya, Masuri and IR-20 are the popular varieties.

The long duration crop is known as *mundan* and the season lasts from May to December—January. The crop is either broadcast or transplanted.

Tapioca : Planting is done throughout the year and the crop comes to harvest in about ten months. The yielding potential of local variety is from two to three kg. of tubers per plant while that of improved variety is about 5 kg. tubers per plant. The M. 4 and H-165 are the improved varieties increasingly sought after by farmers.

Banana : There is no well defined season for this crop and as such it is raised throughout the year. The *poovan*, *mannan*, *chenkathali*, *kunnam*, *nendram*, *thekkan* or *adukkan*, *kathali*, *adakkapoovan*, *mysore*, *thezhuthani* and *thiruvoden* are the most commonly cultivated varieties. The Mauritius, Grosismichel, Peddapatcha are the varieties recommended to the planters in the region in view of the high incidence of bunchy top disease in other varieties.

Arecanut : Seedlings are generally planted in June—July. The peak harvesting season lasts from November to February. On an average about 400 nuts are obtained from a tree in a year. 'Kasargode' is the most popular variety of arecanut grown here.

Pepper : Cuttings are planted in June-July. Rooted cuttings are planted upto August-September. Annual tying of vines to standards and logging of standards is a common practice. The *kalluvalli*, *uthramcotta* and *balancotta* are the most popular local varieties. *Karimunda* is an improved variety. *Panniyur-1* is the improved variety recommended.

Coconut : Seedlings are planted mostly in June—September. The peak harvesting season lasts from January to May. The average number of harvests per year is eight. The average yield per tree per annum is about 50 nuts. *Kuttiadi* variety of coconut is the most sought for variety by the cultivators among the west coast tall varieties. The hybrid 'T & D' variety is now being popularised in the region.

Yanam region :

Paddy : This is a long duration crop (*sarva*). Nurseries are raised generally during June—July. It is also a practice in this region to raise nurseries in dry condition. The crop comes to harvest in December. The main varieties are SLO-13, MUT-3 and GEB-24. High-yielding varieties grown are Mashuri (Ponni), Jagannath, IET 1991 and RP 193-1.

A *dalwa* crop is raised as a second crop when water is available in sufficient quantity. This is a short duration crop. The main varieties grown during this season are CO-29, CH-45, SLO-19, etc. High-yielding varieties like Padma, Jaya, IR-8 and Ratna are also grown.

Mixed cropping : This is a peculiar system followed only in this region of the Territory. Hence, one of the varieties of paddy viz. Bala, MTU-17 or MTU-18 is sown in dry condition in-between the lines of redgram crop. The paddy crop is harvested before the redgram crop comes to harvest.

Jowar and Cumbu : With the onset of summer showers in May, jowar and cumbu are taken as rainfed crops in some parts of the region.

Ragi : This crop is sown in November under rainfed condition. The main variety being cultivated is AKP. 1.

Pulses : About the time of *sarva* harvest, sprouted seeds of blackgram, greengram, pillipesera, etc. are sown. Its cultivation is resorted to as a source of subsidiary income by the farmers in the region.

Coconut : Coconut is grown mostly in upland areas of Mettakurru and Adivipolam under rainfed condition.

Ground-nut : Ground-nut is the most popular oil-seed crop grown in the region. It is raised mostly during July—August in upland areas under rainfed condition. Generally bunch varieties are sown. During the months of December and January, ground-nut is cultivated as rainfed crop.

Progress of scientific agriculture:

The use of modern labour saving devices and implements, the adoption of efficient plant protection measures, the use of improved seeds and the application of scientific manures will alone testify to the progress of scientific

agriculture which can be measured in terms of increased production. Viewed as such, the Territory has no doubt witnessed dramatic changes in the sphere of agricultural practices in the course of the last two decades. But an inquisitive visitor to the interior of the Territory will find age old practices still being followed alongside the most modern methods, indicative of a period of transition.

Analysing the situation in 1965, the National Council for Applied Economic Research pointed out that improved methods are adopted only in bits and a scientific method of cultivation cannot be said to have been adopted, as cultivators were not familiar with the various types of fertilisers and the suitability of each fertiliser for the crops. Lands were seldom prepared before the sowing of crops.³⁶ Though the entire Territory was fully covered by the extension service, its impact on the peasants was rather limited. For example, in 1965 the average yield of paddy per ha. was only 1,800 kg. About the same time, the farm of Sri Aurobindo Ashram showed a yield of 3,500 kg./4,500 kg. per ha. It was, therefore, pointed out that it should be possible to raise the average yield of paddy to 3,000–4,000 kg. per ha. by 1975. Similarly, it was felt that sugar-cane yield could be increased to 1,00,000 kg. per ha. by 1975 mainly by applying more fertilisers and by using improved strains.

In time, the Directorate of Agriculture also came forward to implement several measures to encourage the adoption of scientific methods of cultivation in the Territory. The most important was the introduction of new high-yielding varieties. Provision of all inputs like credit facilities through several agencies, supply of chemical fertilisers, improved seeds, intensification of pest control measures, popularisation of improved techniques through farmers' training and demonstrations were some of the important measures through which increased production was sought to be achieved in the Territory. These efforts evoked encouraging response with the result the area under improved methods of cultivation showed a perceptible increase during the next few years.

Agricultural implements :

The use of traditional implements like wooden ploughs is still continued in spite of the fast developing tendency towards mechanisation. The implements available with the farmers are mostly of the older types like *manveitti*, *kalakattu*, *aruvalu*, *erukalape*, *parambu* and *palakai alavangu*.³⁷ A good number of the ryots still use the traditional type of agricultural implements like wooden ploughs with simple plough shares, spades,

crow-bars, carts, cart axles and cart wheel tyres. Left with limited resources and very small holdings, most of the ryots were not enthusiastic about improved implements. With a view to overcoming these hurdles, arrangements were made for the subsidised distribution of improved implements. The Small Industries Service Institute confirmed in 1959 that ryots in the Territory were increasingly adopting improved implements.³⁸ With the popularisation of the Japanese method of cultivation, the demand for improved agricultural implements like paddy weeders and mulching machines showed steady increase.

The labour saving devices adopted in this Union territory are given below :

1. Bose ploughs.
2. Iron ploughs.
3. Intercultivators.
4. Burmese setturns and tramlers.
5. Ridge ploughs.
6. Ground-nut decorticators.

Bose ploughs have become the fashion as the result of intensive efforts made in the fifties. This plough is not only cheap, but also found suitable for the varied texture of the soil and has thus gained much popularity. Such implements as green manure trampler, wet land puddler, etc., were some of the other modern implements which caught the imagination of our agriculturists. The Directorate through the agricultural extension workers tried to popularise the *P.S.G. 16c.*, *P.S.G. 10*, *Cooper-11* and *Cooper-25* among cultivators as they were found suitable for the type of soils met with in the region.

Cattle served as the chief motive force for ploughing. Many well-to-do ryots have come to possess farm machinery like tractors and power tillers. Creditworthy cultivators were facilitated to purchase them under hire-purchase arrangements. The total number of ploughs as revealed by the 1961 census was 19,581 of which 14,206 were wooden ploughs and 5,375 iron ploughs. There were as many as 3,606 carts mainly used for agricultural purposes in the Territory.³⁹

At the end of the Third Five Year Plan (1966) there were 17,119 ploughs in the Territory, of which 12,545 were wooden ploughs and 4,574 iron ploughs. There were only 2,758 carts in the Territory used mainly for agricultural purposes. ⁴⁰ By 1972, the total number of ploughs in the Territory is reported to have increased to 24,671 of which 15,801 were wooden ploughs and 8,870 iron ploughs. There were in all 3,745 carts.

Since 1969, the scheme for the subsidised distribution of improved implements is being implemented under the Community Development Programme. The departmental tractors were made available to the ryots to encourage the adoption of mechanised cultivation. Further, long term loans were also advanced to the ryots for the purchase of tractors. As many as 75 tractors were distributed through the Directorate of Agriculture as well as through dealers upto 1971-72. Between 1958-59 and 1971-72 the Directorate provided loans for the purchase of 116 tractors and three power tillers. The programme of granting loans to cultivators for the purchase of tractors and tillers was, however, discontinued from March 1972. Mechanisation has made its impact on agriculture to the level of tractor ploughing, hauling and other tillage operations especially in respect of cash crops like sugar-cane. The use of *kavalai* and *picotah* was popular in irrigation. They have almost entirely been replaced by pump sets. The pump sets were mostly operated on oil. However, with the progress of electrification, the oil pump sets have been replaced by electrically operated ones. The progress registered in this direction should be evident from the fact that power connections for agricultural purposes had increased from 267 in 1955 to 6,081 in 1974. ⁴¹

Chemical fertilisers are supplied to the ryots through the Marketing Society, Village Co-operative Societies and private dealers. The per hectare consumption of fertilisers in Pondicherry vis-à-vis the all-India average during 1972-73 is furnished below :

			N	P	K
Pondicherry	..	..	68.40	39.60	22.90
All-India	..	..	10.90	3.60	2.00

The per hectare consumption of fertilisers during 1973-74 was also the highest in the whole of India.

Seeds and seed farms: The use of improved seeds of paddy, millets, oil-seeds and cotton was almost a new thing for farmers in the Territory at the time of merger. They started paying attention to the quality and purity of seeds only after these ideas came to be propagated among them. By 1959, it was estimated that nearly 10 per cent. of the area in Karaikal and 50 per cent. of the area in Pondicherry were under improved seeds of all crops. The cultivators themselves were persuaded to raise paddy nurseries in 'cent plots' to meet their own requirements of seedlings. Nucleus seeds of improved varieties of ground-nut were multiplied on ryots' holdings for further distribution. Seeds of promising varieties of vegetables were purchased and distributed to the ryots. A greater awareness is evident nowadays in the selection of seeds and preparation of seed beds. The use of improved seeds is seen as one of the important means to increase agricultural output in the Territory.

In an attempt to produce quality seeds within the Territory, two State Seed Farms were set up, one at Madagadippattu (10 ha.) in Pondicherry region and another at Mathur (14 ha.) in Karaikal region. The improved seeds are multiplied in these farms for further distribution to the ryots. The State Seed Farm at Mathur specialises in the production of quality paddy seeds, whereas the State Seed Farm at Madagadippattu is engaged in the multiplication of seeds of paddy, pulses, millets, vegetables, etc. The production of improved seeds is supervised by the respective Farm Managers. The nucleus seeds purchased from the neighbouring state of Tamil Nadu are multiplied in the two State Seed Farms and then distributed to the ryots for further multiplication and distribution. Only good quality seeds from the Seed Farms are supplied to the farmers and the remaining seeds are disposed off as non-seeds. The State Seed Farms also serve as demonstration farms.

Coconut seedlings are raised in Pondicherry, Mahe and Yanam. Major portion of the requirements of this Union Territory is raised in Pondicherry region. There is a Coconut Nursery attached to the State Seed Farm, Madagadippattu, and seed coconuts procured from Chencotta area of Tirunelveli District and some nuts from Mahe region are sown in the nurseries. The seedlings obtained from this nursery are distributed to the ryots on a no-loss-no-profit basis. An area measuring 3.2 ha. adjoining the Madagadippattu Seed Farm was purchased for setting up an orchard-cum-nursery.

Manuring : The main crop of paddy was grown on the same land year after year. Sometimes even three crops were raised within the same year. This process exhausted the soil of its nutrients and called for replenishment by an adequate use of fertilisers. It was also seen that nitrogen content of the soil

was low. It also lacked phosphoric acid. This combined deficiency could be removed only by the use of organic manures, specially green manures, with an added dose of superphosphates. Traditionally, however, the ryots used to apply only farm-yard manure in the lands. Green manuring became quite common in the Territory after merger and the area under green manuring is said to have registered some increase. Green manure crops such as kolinji, pillipesara, daincha, sunhemp, etc. are popular.

With increased irrigation facilities, however, relatively less land would be available for growing green manures. The National Council for Applied Economic Research, therefore, suggested that the emphasis should be on the intensive usage of chemical fertilisers, viz. urea, calcium, ammonium nitrate, ammonium phosphate and superphosphates. Ryots in the Territory are increasingly taking to chemical fertilisers like urea and superphosphate, muriate of potash besides complex and mixed fertilisers.

Agriculturists have come to accept rotation cropping as another means of preserving the fertility of the soil. In Pondicherry, the rotation of crops followed in dry lands are cotton, ground-nut and cholam. In wet lands, paddy is followed by paddy, ragi, ground-nut or paddy in areas where the soil is loamy. Paddy followed by green manure is also in vogue in certain parts of this region. In Karaikal, paddy crops are usually followed either by green manures or pulses. In 1959 the area under paddy rotated with either green manure or pulses came to about 3,600 ha. in Karaikal alone. The rest of the area was left fallow after paddy. Raising of ragi along with irrigated ground-nut is a common practice in all garden lands.

The preparation of compost is being popularised in the Territory through propaganda and demonstrations with a view to making better use of farm wastes. There is a definite trend towards increased use of compost and synthetic manure in the Territory. Use of compost, municipal rubbish, town waste, waste cotton from the mills, etc. is very common. Cattle and sheep penning is also observed in certain parts. The municipalities are also assisted in preparing compost out of night soil. The V Plan fixed the target of rural compost at 1,32,000 tonnes, urban compost at 25,000 tonnes and the area of green manuring at about 48,800 ha. Although the performance till 1965 particularly in the case of urban compost was very slow, it was suggested that the compost manure was a very good source of nitrogen and its application must be increased as much as possible.⁴² The V Plan had fixed the target of rural compost at 1,20,000 tonnes, urban compost at 40,000 and the area under green manuring at about 10,000 ha. at the end of the V Plan.

Diseases and pests : Some of the common diseases and pests affecting some of the important crops in the Territory are recounted here. Stem borer, green jassids, white jassids, leaf-roller, and ear head bugs are the important pests which cause much havoc. Among these, stem borer seems to be the major pest attacking crops on all seasons, namely, *kuruvai*, *samba* and *navarai*. The major pest which attacks paddy crop during *samba* season is leaf-roller. The ear head bug attacks paddy crop during the *navarai* season. Blast, helminthosporium, leaf spot and bacterial blight are the diseases which attack paddy crops in all seasons. The attack by blast and leaf spot is severe on paddy particularly during *samba* season.

Neck blast is the most serious ragi disease. The green ear or downy mildew are the two important diseases affecting cumbu. Red hairy caterpillar, leaf miner, leaf folder and aphids are the common pests which attack the ground-nut crop. The rainfed ground-nut suffers great damage from red hairy caterpillar every year. Although the leaf miner attacks both the rainfed and irrigated ground-nut, the damage seems to appear more on the rainfed crop. The leaf folder and aphids cause great damage to irrigated crop. Tikka leaf spot and the root rot attack both irrigated and rainfed ground-nut.

Sugar-cane crop in the Territory come under the attack of pests like early shoot borer, top shoot borer and pyrilla. The red rot seems to be the major disease affecting sugar-cane.

The most common pests affecting cotton are aphids, jassids, thrips and boll-worms. The fusarium wilt, the black arm of cotton or the angular leaf spot are the two important diseases affecting cotton.

The red palm weevil, black headed caterpillar and the rhinoceros beetle are the important pests affecting coconuts.

Pests like cut worms, aphids, jassids, shoot borer and fruit borer cause great damage to both tomato and brinjal. Fruit borers, cut worms and thrips cause severe damage to chillies. Root rot and fruit rot are considered to be the major diseases affecting tomato. In the case of brinjal, both wilt and little leaf virus cause great damage. The yellow mosaic virus is the most common disease affecting bendai. Wilt is the major disease affecting onion. Bunchy top and banana wilt are the most serious diseases affecting banana.

The traditional remedy for crop diseases and pests was to apply wood ash against aphids. Spraying of lime water to protect plants from caterpillars was another common practice in the villages. The burning of waste materials near the pest attacked trees was also practised in the rural areas. In recent times, however, epidemic control measures are taken up under the Plant Protection Scheme by distributing pesticides free of cost. Pest control operations are carried out by the Plant Protection Squad which covers large areas and carries out large scale prophylactic measures. The extension staff carry out inspection of the crops and prescribe the pesticides and fungicides to be applied for particular crops. Individual ryots are supplied plant protection chemicals and equipments at subsidised cost for protecting their crops from diseases and pests.

Progress under the Five Year Plans:

The subject of agriculture was the concern of the agricultural wing of **Service Economique** till merger. An independent Directorate of Agriculture was established in the year 1956, the last year of the First Five Year Plan. As such, no appreciable results could be achieved during the I Plan period in the field of agriculture.

II Plan : At the time of merger, the Territory was deficient even in the matter of rice which was the staple food of the vast majority of its people, the annual deficit of rice amounting to 8,000 tonnes. Hence in the strategy of planning, agricultural programmes received a pride of place. The objective was to achieve self-sufficiency in food. A sum of Rs. 13.42 lakhs was earmarked for agriculture in the II Plan. Total expenditure amounted to Rs. 11.49 lakhs. The Seed Multiplication and Distribution Scheme, the Fertilisers Distribution Scheme, the Plant Protection Scheme and the Bore-well Scheme formed the main programme of action during the period, all aimed at increasing food production in the Territory. Agricultural production is estimated to have increased by about 30 per cent. during the II Plan period. The production of rice was estimated to have risen by 9.3 per cent. whereas total food production was said to have risen by 10.1 per cent. between the years 1955-1961.⁴³ In other words food production was estimated to have risen from 34,700 tonnes in 1956 to 42,000 tonnes in 1961. By the end of the II Plan, the Territory's export (9,443 tonnes) of rice was more than its imports (8,633 tonnes). The establishment of a sugar factory in 1960 gave a boost to the cultivation of sugar-cane, the production of which increased from 3,583 tonnes in 1956-57 to 1,17,442 tonnes in 1959-60.

III Plan : During the III Five Year Plan, 23 development schemes were taken up for implementation. Although a sum of Rs. 38.52 lakhs was earmarked for agriculture, actual expenditure amounted to Rs. 46.84 lakhs. Significant increase was registered in the area under sugar-cane. The Intensive Rice Cultivation Scheme, extended to the Territory in 1963, was implemented in Pondicherry and Karaikal regions with a view to increasing food production through what was called the intensive adoption of package of practices. Two State Seed Farms were established, one at Madagadipattu and another at Mathur in Pondicherry and Karaikal regions respectively for the production of good quality seeds. An Experimental Research Farm and an Orchard-cum-Nursery each were also established at Mathur and Madagadipattu.

Coconut nurseries were set up in all the four regions for the supply of good quality coconut seedlings to the ryots. Agricultural credit facilities were extended to the ryots for the purchase of tractors, electric motor pump sets and for sinking bore-wells under the Takkavi Loan Scheme. Under the Plant Protection Scheme, measures for plant protection were taken up on a large scale. The Experimental Research Farm at Kirumambakkam was, however, closed down on 30 September 1969. A scheme for vegetable development, which formed part of the Horticulture Development Scheme, was also taken up for implementation in 1967. As the result of the implementation of these development schemes food production, which was 42,000 tonnes at the end of the II Plan, rose to 56,056 tonnes by the end of the III Plan. Sugar-cane production which stood at 1,26,000 tonnes in 1961-62 rose to 1,64,000 tonnes in 1964-65.

In 1965, the National Council for Applied Economic Research called for a change in the agricultural policy of the Territory. The Council said that the hitherto laid emphasis on self-sufficiency should be altered. The new strategy suggested was that while the output of paddy may be maximised by increasing the per hectare yield in the existing or less land, greater attention should be paid on increasing the output of cash crops for which the area was eminently suitable. This was felt particularly important because the Territory was almost bereft of power and natural resources. Added to this, the high pressure of population made it imperative that cash crops which yielded a greater income directly to the cultivated and could indirectly help its industrial development should be popularised on a large scale. According to the Council, there was scope for increasing the area under cash crops such as sugar-cane,

ground-nut, cotton, spices, condiments, plantain, gingelly, cashewnut, etc. It was further suggested that this should be done by limiting the area under low value crops such as food grains or even by marginally reducing it and increasing the area under commercial crops. The criterion for choosing the superior crops was to be based roughly on the higher value of output per hectare. The Council, therefore, suggested that the following cropping pattern should be brought about in Pondicherry and Karaikal regions by 1976:

Suggested cropping pattern 1975-76

(In hectares)

Crops				Pondicherry		Karaikal	
				1961-62	1975-76	1961-62	1975-76
Paddy	..	..	..	14,388	15,000	14,875	16,000
Other cereals	..	..	..	5,002	4,000	—	—
Pulses	..	..	..	294	1,000	261	1,000
Total food grains	..	..	..	19,684	20,000	15,136	17,000
Chillies	..	..	..	47	400	9	100
Coriander	..	..	..	30	450	—	50
Sugar-cane	..	..	..	1,416	3,500	—	—
Cashewnuts	..	..	..	235	600	—	200
Ground-nut	..	..	..	3,935	4,500	—	—
Gingelly	..	..	..	656	1,000	17	100
Coconut	..	..	..	408	750	108	400
Other crops	..	..	..	2,126	1,300	125	330
Total cropped area	..	..	..	28,539	33,240	15,395	18,180

The National Council for Applied Economic Research suggested the reduction of area under millets and increase in the area under pulses, especially because these leguminous crops added to soil fertility. An increase in the area under fodder, the planting of coconut trees on the borders of fields, growing of cashewnut trees on dry land and along the sea coast both in Pondicherry and Karaikal, increasing the area under pulses were also recommended. It pointed out that the waste lands and fallows and even some of the lands classified as not fit for cultivation could be used for casuarina plantation, provided irrigation facilities were made available initially. There was scope for increasing the sugar-cane yield to 1,00,000 kg. per ha. by 1975 chiefly by applying more fertilisers and by using improved strains. The Council also drew attention to the fact that the additional potential for the farm output could not be fully exploited unless other measures such as land reforms, consolidation of holdings, strengthening of extension service and provision of ample agricultural credit, etc. were introduced simultaneously.

The N.C.A.E.R. cautioned that no effort and outlay should be wasted on schemes that contributed little to the output levels or to the production efficiency of the people.⁴⁴ According to its own estimate, agricultural production programmes for the decade 1966-75 would require an investment of Rs. 210 lakhs in all, Rs. 84 lakhs being in the public sector and Rs. 126 lakhs in the private sector. The value of output was expected to more than double between 1960-76. The gross value of agricultural output which stood at Rs. 401 lakhs in 1960-61 was estimated to reach Rs. 850 lakhs by 1975-76 (at 60-61 prices) giving a growth rate of 6.35 per cent. over the decade.

Annual Plans : The subsequent three years i.e. from 1966 to 1969, however, marked the period of annual plans. The schemes or projects implemented during this period were chiefly those which were left incomplete during the III Plan, besides those envisaged for implementation under the IV Plan.

The Vocational Agricultural School (with a 3.296 ha. farm attached to it) was started on 1 July 1967 at Mathur in Karaikal region. To begin with, the school admitted twenty students for the one-year course, each student being paid a stipend of Rs. 50 plus Rs. 5 for pocket money.⁴⁵ The annual intake of students was fixed at 20. Admission was restricted to students from agriculturist families.

The Soil Testing Laboratory located within the Botanical Garden campus was commissioned in March 1968 with the object of testing, free of cost, the soil samples from farmers' fields, recommending optimum fertiliser doses for different crops and also testing the suitability of water for irrigation purposes.

The Comprehensive Scheme for the Development of Sugar-cane was implemented in Pondicherry region from 1968 onwards, out of the cess fund collected from the sugar factories. The Horticulture Development Scheme was also implemented for increasing the production of banana, mango, vegetables and cashew, besides supplying fruit planting materials at subsidised rates.

Zonal Nucleus Farms were set up on leased lands or government lands, as the case may be, from year to year. A separate Arecanut and Pepper Development Scheme was launched in Mahe region for the development of arecanut and pepper crops. The Coconut Development Scheme was implemented in Yanam region for the production and supply of good quality coconut seedlings to the ryots of Yanam region.

IV Plan : A shift in the strategy of agricultural development during the IV Plan was noticeable. It aimed at increasing food production through intensive cultivation measures rather than by increasing the area under cultivation. Out of the total area of 46,822 ha. in this Union Territory, the net area sown by the end of the III Plan was of the order of 32,700 ha., the remaining area being accounted for by permanent pastures, land under miscellaneous trees, groves, cultivable waste lands, etc. There was not much scope for expanding the cropped area in this Territory and efforts were, therefore, directed towards intensive cultivation practices, adoption of remunerative cropping patterns and improved cultivation practices, etc.

Various development schemes involving an outlay of Rs. 81.62 lakhs were implemented during the Fourth Plan. The I.A.A.P. was extended to all the four regions of the Territory. An Agricultural, Engineering, Repair and Maintenance Workshop was set up at Pondicherry in October 1975 for carrying out repairs to all types of agricultural machinery.

A Seed Testing Laboratory was established in November 1972. The same year, a Quality Control Laboratory was added to the Soil Testing Laboratory. The Mobile Soil Testing Laboratory, the Pesticide Testing Laboratory and a Ghee and Oil grading Laboratory were established in January 1973 for analysing samples for quality control.

The Centrally sponsored on Multiple Cropping Programme was also implemented in the IV Plan.

The need for establishing an efficient marketing system for the agricultural products was also realised and the Pondicherry Agricultural Produce Markets Bill was framed for the purpose.⁴⁶ The bill, as passed by the Assembly, received the assent of the Lieutenant-Governor on 28 March 1974.

The first Agricultural Polytechnic (Krishi Vigyan Kendra) of India was established at Pondicherry in 1974 to train middle level technicians in the field of agriculture and allied pursuits. (Vide 'Krishi Vigyan Kendra' under Chapter XV)

Although a proposal for setting up a Model Agronomic Research Station in the Territory was mooted as early as 1969, proceedings for acquiring 18 hectares of land for the Research Station at Kariyamanikkam could be completed only in 1976. Here seed multiplication of sugar-cane is undertaken to supply quality seed material to the ryots.

The estimated annual growth rate of agricultural income was 10.5 per cent. during the IV Plan. While the estimated requirement of food grains at the end of the IV Plan was placed at 70,000 tonnes, anticipated production was placed at 1,20,000 tonnes leaving a surplus of 50,000 tonnes. Even if the production level is maintained at the same level during the V Plan and the requirement rises to 80,000 tonnes, the Territory will be left with a surplus of 40,000 tonnes. Sugar-cane production increased to 2,00,000 tonnes by the end of the IV Plan.

V Plan: The Fifth Plan aims at increasing...

The area under oil-seeds is to be increased from 4,800 ha. to 6,000 ha. (1979), and pulses from 6,000 ha. to 8,000 ha.

Between 1974 and 1979 the cropping pattern is designed to shape as follows :

(In hectares)

	1974	1979
Paddy	36,000	30,000
Bajra	4,400	2,800
Ragi		
Other millets		
Sugar-cane	1,800	4,000
Ground-nut	4,800	6,000
Other oil-seeds including sunflower		
Pulses	6,000	8,000
Cotton	1,800	3,600
Vegetables	800	2,400
Other yielding fruits	480	1,600
Coconut	1,520	1,600
Gross cultivated area	57,600	60,000

It could be seen from the above statement that the gross area cultivated is expected to increase only by 2,400 ha. between 1974 and 1979. The additional 2,400 ha., it is said, will represent the area which will come under long duration crops like sugar-cane and banana. The Fifth Year Five Plan Approach Paper propounds a new agriculture policy viz. a policy of evening out regional disparities.

IV. Animal husbandry

Introductory:

The agricultural economy of the Territory is based on the system of mixed-farming under which the cultivable land is utilised for the production of food grains, while its by-products such as straw, etc. are used for feeding the cattle attached to the farm, mainly as draught animals. They also held produce farm-yard manure. The agro-climatic conditions of the Territory are very much similar to those of the adjoining states.

The livestock sector contributed very little towards income generation in this Territory. The contribution was even smaller than in the neighbouring State of Tamil Nadu where livestock was relatively less important. The share was below 0.9 per cent. in the Territory in 1960-61 as against 1.8 per cent. in Tamil Nadu and 8 per cent. for All India. This was so because of the poor quality of the local cattle and also the larger number of goats whose economic value was low. The Territory had no good quality breed of cattle and the feed supplied to the livestock population was deficient both in quality and quantity.

Prior to merger, there was no separate out-fit to deal with livestock services in the Territory. There were also no qualified persons to man the services in the initial stage. All that existed was a skeleton staff attached to the Public Health Services in Pondicherry to attend to veterinary functions. The origin of this wing is traced to 1935 when there was a male nurse (vet.) and an attender to attend to the animals. Only during periods of outbreak of cattle diseases, prophylactic measures were taken for the control of such outbreaks. By about 1945, this wing which functioned in the premises of the Government Pharmacy moved out to Orlayanpet. The Veterinary Wing was placed under the care of a Veterinary Surgeon who also attended to the duties of the municipal slaughter house. In 1948, another Veterinary Hospital was opened at Karaikal for the treatment of animals and to attend to the duties of the slaughter house there. It was about this time that concepts of breed development and preventive inoculation, etc. were gaining ground all over India.

Since 1948, the services of Veterinary Assistant Surgeons were obtained from Tamil Nadu. Soon after merger, the Veterinary Wing started functioning as a separate unit with a Veterinary Officer in charge of the Veterinary Hospital in Pondicherry and a Veterinary Assistant Surgeon in charge of the