



# FARM GUIDE 2012



FARM INFORMATION BUREAU  
GOVERNMENT OF KERALA



**കെ.പി. മോഹനൻ**  
കൃഷി-മൃഗസംരക്ഷണം  
അച്ചടി-സ്റ്റേഷനറി വകുപ്പ് മന്ത്രി



തിരുവനന്തപുരം  
24.11.2011

### സന്ദേശം

കേരളത്തിലെ കാർഷികമേഖല വിത്തു മുതൽ വിപണനം വരെയുള്ള പരമ്പരാഗത കാർഷികമേഖലയിലെ നല്ല വശങ്ങളെയും, ശാസ്ത്ര-സാങ്കേതിക മേഖലയെയും സമന്വയിപ്പിച്ചുകൊണ്ടും, മാലിന്യവിമുക്തമായ ഒരു വഴിത്തിരി വിലാണ്. ഉത്പാദനം പരമാവധി വർദ്ധിപ്പിക്കുകയും കൃഷി കൂടുതൽ ആദായകരമാക്കുകയും ഒപ്പം കർഷർക്കുവേണ്ട പരിരക്ഷ നൽകുകയും ചെയ്താൽ മാത്രമേ കൃഷിയിലെ നഷ്ടപ്രതാപം നമുക്ക് വീണ്ടെടുക്കാനാവൂ.

ഈ ലക്ഷ്യങ്ങൾ മുൻനിർത്തിയുള്ള പ്രവർത്തനവും പദ്ധതിയും സമീപനവുമാണ് സർക്കാർ സ്വീകരിച്ചുവരുന്നത്. എല്ലാ കർഷകർക്കും പ്രതിമാസ പെൻഷൻ നൽകാനുള്ള പദ്ധതി നടപ്പിലാക്കുന്നതിലൂടെ കർഷകർക്ക് ഈ മേഖലയിൽ തുടരാനുള്ള പ്രേരണ ഉണ്ടായിട്ടുണ്ട്. ധാരാളം പേർ കൃഷിയിലേക്ക് പുതുതായി കടന്നുവരികയും ചെയ്യുന്നു.

ഉത്പാദനവർദ്ധനവിനൊപ്പം സുരക്ഷിതമായ ഭക്ഷ്യവസ്തുക്കൾ പരിസ്ഥിതി സൗഹൃദപരമായി ഉത്പാദിപ്പിക്കുന്നതിന് ഗവൺമെന്റ് ഊന്നൽ നൽകുന്നു. ജൈവകൃഷിക്ക് പരമാവധി പ്രാധാന്യം കൊടുക്കുന്നത് ഇത് മുൻനിർത്തിയാണ്. ആധുനിക കൃഷിരീതികളായ പ്രിസിഷൻ ഫാമിംഗ്, സംരക്ഷിത കൃഷി തുടങ്ങിയവയ്ക്കും മുൻഗണന നൽകുന്നു. കുറഞ്ഞ സ്ഥലത്തുനിന്നും കൂടുതൽ ഉത്പാദനവും, യുവാക്കളെ കാർഷികമേഖലയിൽ ആകർഷിക്കുവാനും, തൊഴിലാളി ക്ഷാമം പരിഹരിക്കുവാനും സാധിക്കുന്നതോടെ കാർഷികമേഖലയിലെ അനിശ്ചിതത്വങ്ങൾ ഒഴിവാക്കാനും കൂടുതൽ ലാഭകരമാക്കുവാനും സഹായകരമാകും.

കൃഷിയും അനുബന്ധമേഖലകളും തമ്മിലുള്ള ഒരു സമന്വയം കേരളത്തിന്റെ ഭാവി ഭക്ഷ്യസുരക്ഷയ്ക്ക് അത്യാവശ്യമാണെന്ന് സർക്കാർ വിശ്വസിക്കുന്നു. സംയോജിത കൃഷിരീതി പറുന്നത്ര വ്യാപിപ്പിക്കണം. കൃഷി, മൃഗസംരക്ഷണം, ക്ഷീരവികസനം, കുടുംബശ്രീ തുടങ്ങിയ വകുപ്പുകൾ ഒത്തുചേർന്ന് ജൈവകൃഷിക്ക് മുൻഗണന നൽകിക്കൊണ്ട് പരമാവധി ഉത്പാദനം വർദ്ധിപ്പിക്കാനും, കൂടുതൽ വിപണനം സൃഷ്ടിച്ചുകൊണ്ടുള്ള പ്രവർത്തനത്തിലൂടെ പുതിയ ദിശാബോധം സൃഷ്ടിക്കാൻ സാധിക്കും. ഏറ്റവും പുതിയ വിവരങ്ങൾ കർഷകരുടെ പക്കലെത്തിക്കുന്ന കാര്യത്തിൽ ഗവേഷണവും വിജ്ഞാനവ്യാപനവും തമ്മിൽ ഒരു സമന്വയം ആവശ്യമാണ്. ഇത് ലക്ഷ്യമിട്ടുള്ള പ്രവർത്തനങ്ങളുമായി നമുക്ക് മുന്നേറാം.

എല്ലാ വർഷത്തേയുംപോലെ കേരളത്തിലെ കൃഷിമേഖലയുടെ അടിസ്ഥാന വിവരങ്ങൾ ഉൾക്കൊള്ളിച്ചുള്ള ഫാം ഗൈഡ് ഈ വർഷവും ഫാം ഇൻഫർമേഷൻ ബ്യൂറോ പ്രസിദ്ധീകരിക്കുന്നുണ്ട്. കേരളത്തിലെ കാർഷികമേഖലയെക്കുറിച്ച് വ്യക്തമായ ധാരണ നൽകാനും ഒപ്പം വികസനോദ്യോഗസ്ഥർക്കും ഈ മേഖലയിൽ പ്രവർത്തിക്കുന്ന മറ്റുള്ളവർക്കും ഒരു കൈപ്പുസ്തകമായി വർത്തിക്കാനും ഫാംഗൈഡിനു കഴിയട്ടെ എന്ന് ആശംസിക്കുന്നു.

**എല്ലാ കർഷകസുഹൃത്തുക്കൾക്കും നന്മനിറഞ്ഞ നവവത്സരാശംസകൾ**

സ്നേഹത്തോടെ,



**കെ.പി. മോഹനൻ**

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**GOVERNOR & COUNCIL OF MINISTERS - KERALA**

<b>Name</b>	<b>Telephone</b>	<b>Residential Address/Fax/e-mail</b>
<b>Shri. M.O. Hasan Farook</b> Governor of Kerala	2728747 (O) 2721100	Raj Bhavan, Tvpm –695 009 e-mail: Keralarajbhavan@gmail.com Website: www.rajbhavan.kerala.gov.in Fax : 0471 - 2720266
<b>Shri. Oommen Chandy</b> Chief Minister	2333682 (O) 2333812 2345600 (R) 2342602 9447276535	Puthuppalli House, Jagathy, Thiruvananthapuram- 695 014 e-mail: chiefminister@kerala.gov.in Website: www.keralacm.gov.in Fax : 0471 – 2333489
<b>Shri. K.P.Mohanan</b> Minister for Agriculture, Animal Husbandry, Printing and Stationery	2333849 (O) 2333772 2334144 (R) 2334133 9496255500	Xanadu, Vazhuthacadu, Thiruvananthapuram e-mail: minister-agriculture@kerala.gov.in Website: www.minister-agriculture.kerala.gov.in Fax : 0471-2332239
<b>Shri. K.C.Joseph</b> Minister for Rural Development, Planning, Culture and Norka	2332021(O) 2333176 2316035 (R) 2316045 9447074003	Kawdiyar House, Vellayambalam, Thiruvananthapuram Fax : 0471-2333176 e-mail: minister-norka@kerala.gov.in Website: www.minister.rdpk.kerala.gov.in
<b>Shri. P.K. Abdu Rabb</b> Minister for Education	2326677 (O) 2335366 2350235 (R) 2350236 9495355500	Thejas, VNRA 37, Vivekananda Nagar, Edapazhanji, Pangode, Thiruvananthapuram. e-mail: minister-education@kerala.gov.in Website: www.mail.kerala.gov.in Fax : 0471 – 2326677
<b>Shri. Adoor Prakash</b> Minister for Health and Coir	2328440(O) 2335766 2310664 (R) 2335766 9495455500	Ganesam, Radhappura Kunnu Lane, Sasthamangalam, Thiruvananthapuram. e-mail: minister-health@kerala.gov.in Website: www.mail.kerala.gov.in Fax : 0471-2328440
<b>Shri. A.P.Anil Kumar</b> Minister for Welfare of Scheduled Castes and Backward Classes and Tourism	2333833 (O) 2331685 2323181(R) 2320451 9447115677	'Rose House', Thycaud, Thiruvananthapuram e-mail: minister-tourism@kerala.gov.in Fax : 0471-2335266

<b>Name</b>	<b>Telephone</b>	<b>Residential Address/Fax/e-mail</b>
<b>Shri. Aryadan Muhammed</b> Minister for Power	2327561 (O) 2321228 2729117 (R) 2311238 9447011324	'Manmohan Bunglow', Near Raj Bhavan, Kawdiyar, Thiruvananthapuram email: minister-electricity@kerala.gov.in Fax : 0471-2327759
<b>Shri. K.Babu</b> Minister for Excise and Ports	2326772 (O) 2327135 9447048418	'Kaveri', No.6, Eastern Side of Cantonment House, Thiruvananthapuram e-mail: minister-excise-ports@kerala.gov.in Fax : 0471-2330019
<b>Shri. C.N. Balakrishnan</b> Minister for Co-operation	2335866 (O) 2313530 (R) 9847035699	'Pournami', Cliff House Compound, Nanthencode, Thiruvananthapuram e-mail: minister-cooperation@kerala.gov.in Website: www.mail1.kerala.gov.in Fax : 0471- 2327669
<b>Shri. V.K.Ebrahim Kunju</b> Minister for Works	2335457 (O) 2430855 (R) 9495155500	JESHIL, T.C.4/189, Kuravankonam, Kawdiar (PO), Thiruvananthapuram-695003 e-mail: minister-pwd@kerala.gov.in Website: www.minister-pwd.kerala.gov.in Fax : 0471-2335466
<b>Shri. K.B. Ganesh Kumar</b> Minister for Forest, Sports and Cinema	2333254 (O) 2333294 2317952 (R) 9447133333	Ajantha, Vellayambalam, Thiruvananthapuram -10 email: minister-forest@kerala.gov.in Fax : 0471-2334648
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<b>Shri.P.K.Kunhalikutty</b> Minister for Industries, Information Technology and Urban Affairs	2332700 (O) 2333059 2314652 (R) 2318602 9947020200	Lyndhurst, Devaswom Board Junction, Nanthencode, Thiruvananthapuram. e-mail:minister-industry@kerala.gov.in Fax : 0471-2333059

<b>Name</b>	<b>Telephone</b>	<b>Residential Address/Fax/e-mail</b>
<b>Shri K.M.Mani</b> Minister for Finance, Law and Housing	2327976 (O) 2327876 2312329 (R) 2313347 9496155500	Prasanth, Cliff House Compound, Nanthencode, Thiruvananthapuram - 3 e-mail: minister-finance@kerala.gov.in Fax: 0471-2327016
<b>Dr. M.K.Muneer</b> Minister for Panchayats and Social Welfare	2327796 (O) 2327895 9496355500	Essendene, Nanthancode, Thiruvananthapuram . e-mail: minister-panchayat@kerala.gov.in Fax: 0471-2330102
<b>Shri. Shibu Baby John</b> Minister for Labour and Rehabilitation	2333460(O) 2725673 (R) 2725671 9447061603	'Ushes', Cliff House Compound, Nanthencode, Thiruvananthapuram . e-mail: minister-labour@kerala.gov.in Website: www.minister-labour.kerala.gov.in Fax : 0471-2333460
<b>Shri.V.S.Sivakumar</b> Minister for Transport and Devaswom	2327574 (O) 2319797 (R) 9496266600	TC 9/2376(3), Sreerangam Lane, Sasthamangalam P.O., Thiruvananthapuram . e-mail: minister-transport@kerala.gov.in Fax : 0471-2327574
<b>Shri. Thiruvanchoor Radhakrishnan</b> Minister for Revenue	2333526 (O) 2313295 (R) 9447018116	Ashoka, Cliff House Compound, Nanthencode, Thiruvananthapuram e-mail : minister-revenue@kerala.gov.in Website: www.mail1kerala.gov.in Fax : 0471-2327495
<b>Shri. P.C.George</b> Government Chief Whip	2512081 (O) 2512323 04822-272114 (R) 09447043027	Plathottathil, Aruvithura P.O., Erattupetta, Kottayam Fax : 0471-2512606
<b>Shri. G.Karthikeyan</b> Speaker	2305830 (O) 2308890 2513014 (R) 2302698, 9048055550	NEETHI, Legislature Complex, Vikas Bhavan P.O., Thiruvananthapuram - 33 e-mail: speak@niyamasabha.org Website: www.niyamasabha.org Fax : 0471-2512131
<b>Shri. N. Sakthan</b> Deputy Speaker	2305831 (O) 2512363 (R) 9745413311	SWATHI, Legislature Complex, Vikas Bhavan P.O., Thiruvananthapuram . e-mail: deputyspeaker@niyamasabha.org Fax: 0471- 2512596
<b>Shri. V.S. Achuthanandan</b> Leader of Opposition	2318330 (O) 2315625 2316465 (R) 9447711500	Cantonment House Vikas Bhavan P.O., Thiruvananthapuram . e-mail: oppositionleader@kerala.gov.in Website: www.oppositionleader.kerala.gov.in



MINISTER FOR AGRICULTURE, ANIMAL HUSBANDRY, PRINTING AND STATIONERY  
**Shri. K.P. MOHANAN**

Telephone Numbers

Office	PABX	Residence
(Direct) 2333849, 2333772 9496255500	300	2334144 2334133
Fax : 0471-2332239 e-mail : minister-agriculture@kerala.gov.in website: www.minister-agriculture.kerala.gov.in		

Portfolios :

Agriculture	Animal Husbandry
Soil Conservation	Soil Survey
Kerala Agricultural University	Veterinary University
Warehousing Corporation	Printing & Stationery

Residential Address

'Xanadu', Vazhuthakkadu, Thiruvananthapuram.

**PERSONAL STAFF OF THE MINISTER**

<b>G.Shaji</b> Private Secretary	2518404	301	9446040284
<b>M.G. Rajendra Prasad</b> Additional Private Secretary	2518193	302	9495830871 2449293
<b>A.C. Mathews</b> Additional Private Secretary	2518414	303	9447380093
<b>C.P. John</b> Asst. Private Secretary	2518125	304	9447020790 2337385
<b>K. Prem Kumar</b> Asst. Private Secretary	2518594	307	9447326078 04923-223415
<b>K.G. Radhakrishnan</b> Asst. Private Secretary	2517226	307	9447856699
<b>K.P. Ramesh Babu</b> Personal Assistant	2518126	304	9447196270
<b>T.N. Manoj</b> Additional Personal Assistant	2518594	305	9446554987

**MINISTER FOR RURAL DEVPT., DAIRY DEVPT., PLANNING, CULTURE AND NORKA**  
**Shri. K.C. JOSEPH**

Telephone Numbers

	Office		Residence
	Direct	PABX	
	2332021, 2333176	300	2316035, 2316045
	9447074003		
	Fax : 0471-2333176		

e-mail : [minister-norka@kerala.gov.in](mailto:minister-norka@kerala.gov.in)

website: [www.minister.rdpc.kerala.gov.in](http://www.minister.rdpc.kerala.gov.in)

Portfolios :

Rural Development,  
 Dairy Development, Milk Co-operatives  
 Planning, Culture, NORKA,  
 Information & Public Relations

Residential Address

Kawdiar House  
 Vellayambalam,  
 Tvpm

**PERSONAL STAFF OF THE MINISTER**

<b>S. Rajasekharan Nair</b> Private Secretary	2332021	8178	2356299 9495106600
<b>K. Mohanan</b> Special Private Secretary	2517110	7110	2543773 9446383773
<b>K.Madhukumar</b> Special Private Secretary	2518175	8175	2225504 9447552657
<b>K.P. Glad</b> Additional Private Secretary	2518115	8115	0474-2764855 9847897576
<b>Adv. Ramakrishnan</b> Assistant Private Secretary	2518467	8467	9447371981
<b>K.P. Jayanandan</b> Assistant Private Secretary	2518107	8107	9447041155
<b>P. Syamkumar</b> Assistant Private Secretary & PRO	-	313	9495243434
<b>M.A. Balakrishnan</b> Personal Assistant	2332021	7104	9447957833
<b>C.V. Divakaran</b> Personal Assistant	-	312	9447548669
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<b>Dr.Nivedita P. Haran</b> (Revenue)	2325239	8549	2724220
<b>S.M. Vijayanand (P&amp;ARD)</b> (Administrative Reforms Training & Vigilance)	2333174	8455	2470730
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<b>S. Sushama</b> Additional Secretary (Agriculture)	2327339	8638	9446042927
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<b>Sajen Peter</b> Principal Secretary	2330644	8977	2436242 9446421100
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<b>M. Sivasankar</b> Secretary	2331509	8997	2356834 9847797000



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<b>Alkesh Kumar Sharma</b> Secretary	2333407	8554	2349399
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<b>K.S. Sreenivas</b> Special Secretary	2327582	8232	2332315
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<b>Rajesh Kumar Singh</b> Secretary	2332935	8290	2344651
	<b>Non-Resident Keralites Affairs Department (NORKA)</b>		
<b>T.K. Manoj Kumar</b> Secretary	2322056	8035	2341839

<b>Parliamentary Affairs Department</b>			
<b>Raju Narayana Swamy</b> Secretary	2333042	8398	9447713372
<b>Personnel &amp; Administrative Reforms Department</b>			
<b>S.M. Vijayanand</b> Addl. Chief Secretary	2338174	8455	2470730
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<b>Subrata Biswas</b> Principal Secretary	2333028	8003	2345404
<b>Power Department</b>			
<b>Pradeep Kumar</b> Secretary	2327499	8445	
<b>Public Works Department</b>			
<b>Manoj Joshi</b> Secretary	2327803	8308	2723770
<b>Revenue Department</b>			
<b>Dr.Nivedita P. Haran</b> Additional Chief Secretary	2325239	8549	2724220
<b>SC&amp;ST Development Department</b>			
<b>Paul Antony</b> Principal Secretary	2329024	8347	2346448
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<b>Prof. V.N. Rajasekharan Pillai</b> Ex. Officio Principal Secretary	2543557		
<b>Social Welfare Department</b>			
<b>Sarada Muraleedharan</b> Secretary	2325992	7011	2342634

	<b>Sports &amp; Youth Affairs Department</b>		
<b>Sivasankar M.</b> Secretary	2331509	8997	2356834
	<b>Stores Purchase Department</b>		
<b>V.P. Joy</b> Secretary	2327586	8292	2439442
	<b>Taxes Department</b>		
<b>A. Ajith Kumar</b> Secretary	2333164	8008	2558727
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<b>T.K. Manoj Kumar</b> Secretary	2322056	8035	9496005700
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<b>V.P. Joy</b> Secretary	2333701	7004	
	<b>Vigilance Department</b>		
<b>K. Jayakumar</b> Addl. Chief Secretary	2327451	8228	2430710
	<b>Water Resources Department</b>		
<b>V.J. Kurien</b> Principal Secretary	2329599	8485	2340614

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<b>P.Sreelatha</b> Joint Secretary	2518707	9961336200
<b>P.T.Thomas</b> Joint Secretary	2518652	9497639616
<b>V.K.Bahuleyan</b> Deputy Secretary	2518955	9446178107
<b>Babu.T.P</b> Deputy Secretary	2518804	9447036430
<b>S.Radhakrishnan</b> Under Secretary	2518258	9447010396
<b>K.N.Sujatha</b> Under Secretary	2518511	9895425113
<b>Joseph Mathew</b> Under Secretary	2518271	9847297268
<b>S.Rajan</b> Under Secretary	2517046	9446456585
<b>Sobhana.P</b> Under Secretary	2518239	9387984484
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Joint Director (PTO, LMTC) Dr. Babu Mathew -----	2732918	mob: 9447505013
Deputy Director (Extension) Dr.K.A. Shajahan -----	2303683	mob: 9496271327
Deputy Director (Swine Husbandry) Dr. P.R. Valsalakumari ----	2303683	mob: 9744222785
Deputy Director (V) Dr. G.R. Latha -----	2303683	mob: 9447157340
Deputy Director (KV) Dr. Jayarus -----	2302683	mob: 9446551279
Deputy Director (Plg i/c) Dr. Jayarus -----	2302683	mob: 9446551279
Deputy Director (Poultry i/c) Dr. G.R. Latha -----	2303683	mob: 9447157340
Deputy Director, SLBP Dr. Vimala -----	2330662	mob: 9446308470
Deputy Director, Epidemiology (ADCP) Dr. Jasmine -----	2476962	mob: 9387407448
Assistant Director (Plg.) Dr. S.Sunil Kumar -----	2303683	mob: 9846095865
Assistant Director (Cattle Development) Dr. Pradeep Kumar -----	2303683	0471-2351614 mob: 9847022242
Assistant Director (Rabies Eradication) Dr. Sureshkumar V. ----	2302381	mob: 9447060639
Assistant Director (CSO) Dr. Anitha A.V. -----	2303683	mob: 9387776793
Assistant Director (Fodder Development) Dr. K. Radhakrishnan -----	2303683	0471-2442385 mob: 9847264468
Senior Finance Officer, Mr. Devarajan M.S. -----	2303683	mob: 9447110400
Senior Administrative Officer, Mr. P. Raghuram -----	2303683	mob: 9447034407
State PRO, Dr. K.A. Shajahan -----	2303683	mob: 9496271327
Asst PRO, Dr. D. Shine Kumar -----		mob: 9847111827
Veterinary Surgeon, Dr. Vinayraj Stephan -----	2302381	mob: 9946668146
Veterinary Surgeon, Dr. Ganesh G. -----	2302381	mob: 9495828798



## DIRECTORATE OF DAIRY DEVELOPMENT

Directorate of Dairy Development, Pattom (Office)	2445799	
<b>Director K.T.Sarojini</b> .....	2445749	9447477799
		e-mail: dairydirector05@yahoo.co.in
		Fax: 0471-2444987
Administrative Officer M.C. Valsalakumaran ....	2445799	9447244069
Finance Officer E. Sreedharan .....	2440853	9995881670
Joint Director (General) T.J. Satheesan .....	2445799	9349421861
Joint Director (Planning) S. Ameerjan .....	2445799	9446978115
Deputy Director (Planning) Issac K. Thayyil ....	2445799	9447303885
Deputy Director (Extension) S.Geetha .....	2445799	9495070647
Deputy Director (General) G.P.Sadasivan .....	2445799	9387802777
Assistant Director /SMS T. Mini .....	2445799	9446559818

## CO-OPERATIVE DEPARTMENT

<b>Registrar: Dr. S. Raveendran</b> .....	2331982	9446471982
		Fax: 2331513
Addl. Registrar (Credit) K.V. Suresh Babu .....	2331136	
Addl. Registrar (Consumer) Ajeyyamohan C.M. ....	2330523	
Addl. Registrar (ICDP) C. Vijayan .....	2330573	
Addl. Registrar (General) Jessymol Joseph .....	2330726	
Director (Audit) K.G. Raju .....	2554429	
Joint Registrar (Audit) N.R. Premachandran .....	2324856	
Joint Registrar (General) Rajendran V. ....	2477516	

## STATE PLANNING BOARD

Planning Board .....	2540707	
<b>Chairman Chief Minister</b>	2333812,	
	2333682(O)	
Vice Chairman <b>K.M. Chandrasekhar</b>	2540404	
	Fax 0471-2540404	
	Website: <a href="http://www.keralaplanningboard.org">www.keralaplanningboard.org</a>	
Members- Minister for Finance .....	2327876	
Minister for Industries .....	2332700	
Minister for Agriculture .....	2333849	
Minister for Electricity .....	2327759	
Minister for Rural Development .....	2333176	
C.P. John .....	2540973	
Vijayaraghavan .....	2541311	
Tharundas .....	2317139	
E.Sreedharan .....	2552598	
Chief Secretary .....	2333147	
Secretary (Planning & Economics) .....	2518003	
Subrata Biswas (Member Secretary) .....	2541762	
Dr. Motilal (Chief-Decentralisation) .....	2540809	

Dr. Rajasekharan Nair (Chief Agri.) .....	2540609	
Dr. V. Vijayakumar (Chief-Evaluation) .....	2540208	
Shyla Unnithan (Chief-Social Service) .....	2540609	
Dr. D. Prasanth (Chief-Plan Co-ordination) .....	2540852	
Dr. V. Santhosh (Chief-Perspective Planning) ...	2532750	
Saraswathy (Chief-i/c Industry & Infrastructure) .....	2540809	
(Senior Administrative Officer) .....	2541270	
N.G. Das (Plan Publicity Officer) .....	2532686	9495829584
K. Musthafa (Publication Officer) .....	2541176	

## DISTRICT OFFICERS OF AGRICULTURE DEPARTMENT

### PRINCIPAL AGRICULTURAL OFFICERS

District	Name	Office	Mob
Thiruvananthapuram	<b>K.Sivanandan</b>	0471-2733334	9446181228
Kollam	<b>C.O. Hemalatha</b>	0474-2795082	9349680377
Alappuzha	<b>B. Nalinakumar</b>	0477-2251403	9446274194
Pathanamthitta	<b>K.K. Chandran</b>	0468-2222597	9447187493
Kottayam	<b>V.K. Raju</b>	0481-2562263	9496019999
Idukki	<b>V.M.Sasikumar</b>	0486-2222428	9400978852
Ernakulam	<b>Asha Devi Varma P.A</b>	0484-2422224	9846154828
Thrissur	<b>Jessy P. Jacob</b>	0487-2444297	9744632468
Malappuram	<b>Amina V</b>	0483-2734916	9497349938
Palakkad	<b>Saramma P. Thomas</b>	0491-2505075	9446151310
Kozhikkode (i/c)	<b>Ushamony R.</b>	0495-2370897	9496002969
Kannur	<b>P.P. Rashid Ali</b>	0497-2706154	9446305298
Wyanad	<b>P. Vikraman</b>	0493-6202506	9447526185
Kasaragode	<b>S. Sivaprasad</b>	0499-4255346	9496002980

### Deans of Colleges Under KAU & KVASU

<b>Dr.Sverup John</b>	0471-2381829	9447348585
College of Agriculture, Vellayani		
<b>Dr.M.Govindan</b> (Associate Dean)	0467-2282699	9447956003
College of Agriculture, Kasaragod		
<b>Dr. C.T.Abraham</b> (Associate Dean)	0487-2370790	9388552466
College of Horticulture,Thrissur		
<b>Dr.B.Mohan Kumar</b> (Associate Dean)	0487-2370050	9995815730
College of Forestry,Thrissur		
<b>Dr.A. Sukumaran</b> (Associate Dean)	0487-2370367	9447028255
College of Co-Operation ,Thrissur		
<b>Dr.M.Sivaswami</b> (Dean)	0494-2686009	9447881823
KCAE&T,Thavanur		
<b>Dr.H. Subramanian</b> (Dean)	0487-2370344	9447617782
College of veterinary & Animal Sc, Mannuthy		
<b>Dr.R. Rajendrakumar</b> (Dean)	0487-2372861	9446442759
College of Dairy science & Technology, Mannuthy		
<b>Dr.Leo Joseph</b> (Associate Dean)	04936-256390	9447832722
College of Veterinary & Animal Sc,Wyanad		

## STATE GOVERNMENT HOLIDAYS

Jan	26	Republic Day	Thursday
Feb	20	Sivarathri	Monday
Apl	5	Maundy Thursday	Thursday
Apl	6	Good Friday	Friday
May	1	May Day	Tuesday
Jul	18	Karkkidaka Vavu	Wednesday
Aug	15	Independence day	Wednesday
Aug	28	First Onam	Tuesday
Aug	29	Thiru Onam	Wednesday
Aug	30	Third Onam	Thursday
Aug	31	Sree Narayana Guru Jayanthi	Friday
Sep	21	Sree Narayana Guru Samadhi	Friday
Oct	2	Gandhi Jayanthi	Tuesday
Oct	23	Mahanavami	Tuesday
Oct	24	Vijayadasami	Wednesday
Oct	26	Id-ul-ad'ha (Bakrid)	Friday
Nov	13	Deepavali	Tuesday
Nov	24	Muharram *	Saturday
Dec	25	Christmas	Tuesday

*\* Subject to change depending on the sighting of the Moon.*

## ഞാറ്റുവേല കലണ്ടർ

ഇംഗ്ലീഷ് മാസം	ഞാറ്റുവേല	മലയാളമാസം
ഡിസംബർ 28 ജനുവരി 10	പുരാടം	ധനു 13-25
ജനുവരി 11-23	ഉത്രാടം	ധനു 26-മകരം 9
ജനുവരി 24-ഫെബ്രുവരി 5	തിരുവോണം	മകരം 10-22
ഫെബ്രുവരി 6-19	അവിട്ടം	മകരം 23-കുംഭം 6
ഫെബ്രുവരി 20-മാർച്ച് 3	ചതയം	കുംഭം 7-19
മാർച്ച് 4-16	പുരുട്ടാതി	കുംഭം 20- മീനം 3
മാർച്ച് 17-30	ഉത്തട്ടാതി	മീനം 4-17
മാർച്ച് 31 ഏപ്രിൽ 12	രേവതി	മീനം 18-30
ഏപ്രിൽ 13-26	അശ്വതി	മീനം 31- മേടം 13
ഏപ്രിൽ 27-മേയ് 10	ഭരണി	മേടം 14 -27
മേയ് 11-23	കാർത്തിക	മേടം 28- ഇടവം 9
മേയ് 24- ജൂൺ 6	രോഹിണി	ഇടവം 10-23
ജൂൺ 7-20	മകയിരം	ഇടവം 24-മിഥുനം-6
ജൂൺ 21-ജൂലൈ-4	തിരുവാതിര	മിഥുനം 7-20
ജൂലൈ 5-18	പുണർതം	മിഥുനം 21-കർക്കിടകം 3
ജൂലൈ 19-ആഗസ്റ്റ് 1	പുയം	കർക്കിടകം 4-17
ആഗസ്റ്റ് 2-15	ആയില്യം	കർക്കിടകം 18-31
ആഗസ്റ്റ് 16-29	മകം	കർക്കിടകം 32-ചിങ്ങം-13
ആഗസ്റ്റ് 30- സെപ്റ്റംബർ 12	പുരം	ചിങ്ങം 14-27
സെപ്റ്റംബർ 13-25	ഉത്രം	ചിങ്ങം -28-കന്നി-9
സെപ്റ്റംബർ 26-ഒക്ടോബർ9	അത്തം	കന്നി 10-23
ഒക്ടോബർ 10-22	ചിത്തിര	കന്നി 24-തുലാം-6
ഒക്ടോബർ 23 -നവംബർ 5	ചോതി	തുലാം 7-20
നവംബർ 6-18	വിശാഖം	തുലാം 21 -വൃശ്ചികം 3
നവംബർ 19-ഡിസംബർ 1	അനിഴം	വൃശ്ചികം 4-16
ഡിസംബർ 2-14	തൃക്കേട്ട	വൃശ്ചികം-17-29
ഡിസംബർ 15-27	മൂലം	വൃശ്ചികം 30 - ധനു 12

## DISTRICT-WISE IMPORTANT TELEPHONE NUMBERS

Name	Tel (Office)	Tel (R)
<b>THIRUVANANTHAPURAM</b>		
<b>STD Code : 0471</b>		
<b>Farm Information Bureau</b>	2318186	
<b>Principal Information Officer [A.M Sunil Kumar]</b>	Fax : 0471-2318186	2458167
Website : www.fibkerala.gov.in / e-mail : fibtvm@gmail.com		9447165562
Keralakarshakan, Publications, Video Divisions	2314358	
Farm News, Press Release, Exhibition & IT Division	2317314	
Agricultural Debt Relief Commission	2555783, 25557847	
Agricultural Urban Whole Sale Market, Venpalavattom	2558930	
All India Radio	2324406	
AGMARK Lab	2558930	
Banana Nursery, Peringamala	04722846622	
Biotechnology Lab and Model Floriculture Unit, Kazhakkuttom	2413739	
Central Tuber Crops Research Institute, Sreekariyam	2598551	
Central Soil Plant Health Centre, Parottukonam	2530578	
Coconut Nursery, Kazhakootam	2413195	
Coconut Nursery, Valiathura	2508222	
College of Agriculture, Vellayani	2381002	
Coconut Research Station, Balaramapuram	2400621	
Cropping Systems Research Centre, Karamana	2343586	
CWRDM, Neyyatinkara	2222319	
Deputy Director (Dairy Dept.)	2554986	
Deputy Director (Fisheries)	2474179	
Deputy Director Soil Survey	2468237	
District Agricultural Farm, Peringamala	04722846488	
District Animal Husbandry Officer	2330736	
District Collector	2731177, 2731200	
District Co-operative Bank	2451595	
District Economicst Statistics Office	2330573	
District Information Officer	2473267	
District Livestock Farm, Kudappanakkunnu	2732964	
District Panchayat President	2440890	
District Planning Officer	2472317	
District Soil Conservation Officer	2472648	
District Soil Survey Officer	2469709	

District Veterinary Hospital	2302643	
Doordarshan	2357605	
Fertilizer Quality Control Laboratory	2530578	
Govt. Guest House, Thycaud	2324561	
ADCP Thiruvananthapuram	2556151	
SADEC, Pattom, Thiruvananthapuram	3256288	Fax : 2553291
I T Mission	2726853	
IITMK, Technopark	2527567	
IMG, Trivandrum	2300069	
Instructional Farm, Vellayani	2383573	
KERAFED	2320504	
Kerala State Information Commission	2320920	
Kerala Land Development Corporation	2320790	
Kerala Land Use Board	2302231	
Kerala Livestock Development Board	2518035	
Kerala State Agro Industries Corporation	2471343	
Kerala State Cooperative Agricultural and Rural Development Bank	2460528	
Kerala State Co-operative Marketing Federation	2323248	
Kerala State Horticultural Products Development Corporation	2359651	
Kerala State Poultry Development Corporation	2478585	
KISSAN, Kerala	2700965	Fax : 2700947
Kudumbashree	2728320	
Lead Bank(IOB)	2320154	
Livestock-Disease Control, Project Officer	2460837	
LMTc, Kudappanakkunnu (Add. Director)	2732918	
N.A.R.P., College of Agriculture, Vellayani	2382239	
NABARD	2334940	
National HorticultureBoard	2337578	
National Research Centre for Oilpalm, Palode	04722840221	
National Seeds Corporation	2343974	
Nedumangad Rural market	0472 2813932	
Pesticide Testing Laboratory	2530867	
Planning Board (Agriculture department)	2540609	
Press Information Bureau	2534055	
Prices Board	2573494	
Principal Soil Chemist, Central Soil Analytical Lab (Soil Survey)	2467796	

<b>Principal Agricultural Officer (K.Sivanandan)</b>	2733334	
e-mail : paotvm@hotmail.com	Fax: 0471-2733334	9446181228
Public Relations Department	2518908, 2327628	
R.T.T Centre, Vellayani (Research Engineer)	2381763	
Sanghamythy	2392668	
Small Farmers Agribusiness Consortium (SFAC)	2322109	Fax: 2322110
Soil Testing Laboratory	2530578	
State Horticulture Mission	2330857	
State Seed Farm, Chirayinkeezhu	0470-2643222	
TBGRI, Palode	0472 2869246	
Veterinary Biologicals Institute, Palode	04722840262	
Vegetable and Fruit Promotion Council, Keralam	2334480	
State seed Farm,Ulloor	2545422	
<b>KOLLAM</b>	STD Code : 0474	
Agency for Cashew Development	2760456	
Cashew Development Corporation	2746029	
District Animal Husbandry Officer	2793464	
District Collector	2794900	
District Co-operative Bank	2742303	
District Information Officer	2794911	
District Panchayat President	2793446	
District Planning Officer	2793455	
District Soil Conservation Officer	2798816	
District Soil Survey Officer	2767121	
District Veterinary Hospital	2795076	
Dy. Director, Economics and Statistics	2793418	
Dy. Director(YP), FIB District Unit	2795082	
Dy. Director, Dairy Development	2748090	
ETC Kottarakkara	2454621	
Farming Systems Research Station, Kottarakkara	2454853	
Fisheries Office	2792850	
Government Guest House	2743620	
Indian Bank (Lead Bank)	2742651	
Joint Registrar of Co-operative Societies	2795176	
NABARD	2743524	
KERAFED	2748033	
Kerala Agro Industries Corporation, Kottarakkara	2454740	

KVK Sadanadapuram	2459388	
KLDMM, Indo Swiss Project, Kulathoopuzha	0475 -2357660	
NABARD	2743524	
Oilpalm India Ltd, Bharathipuram	0475-2202343	
Government Rest House	2742838	
<b>Principal Agricultural Officer (C.O. Hemalatha)</b>	2795082	9349680377
e-mail : principalaokollam@gmail.com	Fax: 2795082	
Sanga Mytri (Apex Body)	0476-3091013	
State Farming Corporation	0475- 2222532	
Vegetable and Fruit Promotion Council Keralam	2451364	
<b>PATHANAMTHITTA</b>	<b>STD Code : 0468</b>	
Agmark Laboratory	9447008150	
Assistant Director of Fisheries	0468 2223134	
Asst.soil Chemist	04734-256645	
Asst. Ex. Engr. Pandalam	04734-252939	
Avian Disease Diagnostic Laboratory, Thiruvalla	0469-2700413	
Dairy Development Department	2223711	
District Information Officer	2222657	
District Animal Husbandry Officer	2222762	
District Collector	2222505	
District Co-operative Bank	2222271	
District Panchayat President	2223078	
District Planning Officer	2222725	
District Soil Conservation Officer	2224070	
District Soil Survey Officer	2223105	
Farmers Training Centre, Pandalam	04734 252244	
District Forest Officer Ranni	04735 227558	
District Insurance Office	0468 2270857	
DMO Pathanamthitta	0469 2222642	
District Development Office For SC	0468 2232272	
District Supply Office	0468 2222612	
District Treasury PTA	0468 2222402	
Economics And Statistics Office	0468 2322743	
Social Forestry Office Ranni	04735 2243452	
Tribal Development Office Ranni	04735 227703	
Govt. Guest House	2228073	
Joint Registrar, Co-operative Society	2222417	
KERAFED	2223458	
Kerala Agro Industries Corporation, Thiruvalla	0469 2701273	



Krishi Vigyan Kendra, Pullad	0469 2662094	
Lead Bank (SBT)	2222589	
NABARD	2222156	
<b>Principal Agricultural Officer (K.K. Chandran)</b>	2222597	9447187493
e-mail : paopathanamthitta@gmail.com	Fax : 0468-2222597	
State Seed Farm, Pulladu	0469 2661917	
Kudumbasree	2221807	
RAIDCO	0468 2222098	
Pazhakulam Agricultural&social Service Society	04734 237262	
State Seed Farm,Adoor	04734 227868	
Sugarcane Research Institute, Thiruvalla	0469 2604181	
Sugarcane Seed Farm, Pandalam	04734252500	
VFPCK Pandalam	04734252030	
<b>ALAPPUZHA</b>	<b>STD Code : 0477</b>	
Asst.Executive Engineer(Agrl)	2268098	
CPCRI, Kayamkulam	0479-2442160	
Disrict Panchayat President	2253836	
Dist. Agrl Farm, Mavelikkara	0479-2357690	
District Animal Husbandry Officer	2252431	
District Collector	2251720	
District Information Office	2251349	
District Soil Conservation Officer	2254927	
District Soil Survey Office, Alappuzha	2236293	
Dy. Director, Dairy Development	2252358	
Dy. Director, Fisheries	2251103	
Executive Engineer(Agrl.)	2266084	
Guest House	2246503	
Joint Registrar, Co-operative Societies	2251713	
Kariland Development Agency, Purakkad	2272617	
KCPM, Mancombu	2702683	
KLDC, Kayamkulam	0479-2270495	
Kerala Agro Industries Corporation	2270942	
Kerala Centre for Pest Management, Moncompu	2702683	
Krishi Vigyan Kendra, Kayamkulam	0479-2449268	
Lead Bank	2251267	
NABARD	2244033	

NSC Unit, Ramankary	2707173	
ORARS, Kayamkulam	0479-2443192	
<b>Principal Agricultural Officer, B. Nalinakumar</b>	2251403	9446274194
e-mail : paoalpy@hotmail.com	Fax : 0477-2251403	
Punja Special Officer	2245426	
Rice Research Station, Moncompu	2702245	
State Seed Testing Lab	2268615	
Soil Testing Lab, Alappuzha	2266862	
<b>KOTTAYAM</b>	<b>STD Code : 0481</b>	
Asst. Ex. Engineer (Agri.)	2561585	
District Panchayat President	2565966	
District Collector	2562001	
District Animal Husbandry Officer	2563726	
DAF, Kozha	04822-234016	
Dy. Director, Dairy Development	2562768	
Joint Registrar of Co-operative Societies	2562069	
Dist. Co-operative Bank	2563603	
District Information Officer	2562558	
District. Soil Conservation Officer	2568519	
District Soil Survey Officer	2300978	
District Veterinary Centre	2564623	
Kerala Agro Industries Corporation, Vaikkom	04829221214	
NABARD	2304688	
Oilpalm India Ltd	2567881	
Plantation Corporation, HQ	2578301	
<b>Principal Agricultural Officer, (V.K. Raju)</b>	2562263	9496019999
e-mail : paoktm@hotmail.com	Fax : 0481-2562263	
Punja Special Officer	2560122	
RATTC, Kozha	04822 - 231351	
RARS, Kumarakom, Office	2524421	
Vegetable and Fruit Promotion Council, Keralam (VFPC)	2534709	
<b>IDUKKI</b>	<b>STD Code : 0486</b>	
Asst. Director of Fisheries, Kumily	04869 222326	
All India Radio, Devikulam	5264259	
Asst. Ex. Engineer (Agri.), Thodupuzha	2228522	
Asst. Soil chemist, Arikuzha	2281162	

Cardamom Research Station, Pampadumpara	8236263	
Coffee Board, Vazhavara	04868 278025	
Deputy Director, Dairy Development	2222099	
District Agricultural Farm, Areekuzha	2278599	
District Planning Officer	04862 233010	
Deputy Director, Spices Board, Nedumkandam	04868 234730	
District Animal Husbandry Officer	2222894	
District Collector	2233101	
District Information Officer	2232403	
District Panchayat President	2233069	
District Soil Conservation Officer, Moolamattom	2252650	
District Soil Survey Office, Thodupuzha	04862-228725	
Govt Guest House, Devikulam	5264223	
Govt. Guest House, Idukki	2233085	
Govt. Guest House, Peerumedu	9232071	
Indian Cardamom Research Institute, Myladumpara	8237268	
Joint Registrar of Co-operative Societies	2232394	
Kerala Agro Industries Corporation	2225117	
KLD Board, Mattupetty	5230389	
Kudumbasree	04862 - 232223	
NABARD	2223705	
National Informatic Centre	04862 - 232543	
KVK, Santhanpara	04868 - 247541	
Oil Palm India Ltd., Vettimattom	2276164	
<b>Principal Agricultural Officer (V.M. Sasikumar)</b>	2222428	9400978852
e-mail : paoidukki@gmail.com	Fax: 0486-2223394 -227848	
RAIDCO, Thodupuzha	04862 - 223703	
State Seed Farm, Karimannoor	04862 263560	
Spices Park, Puttadi	04868 - 288371	
State Vegetable Farm, Vandiperiyar	04869 253543	
Rubber Board, Regional Office	04862 - 222310	
<b>ERNAKULAM</b>	<b>STD Code : 0484</b>	
Aromatics and Medicinal Plants Research Station, Odakkali	2658221	
Asst Ex Engineer (Agri.), Vyttila	2301751	
Agri. Rural Wholesale Market Authority, Muvattupuzha	0485-2813200	
Agri. Urban Wholesale Market Authority, Maradu	2701042	

All India Radio, Kochi	2429113
Cashew Export Promotion council	2376459
Coir Board	2351807
Central IPM Centre	2427114
Central Warehousing Corporation	2314423
Coconut Development Board	2377266
Deputy Director of Fisheries, EKM	2394476
Deputy Director, Dairy Devpt Dept	2422310
Director of Cashewnut & Cocoa Devpt	2377239
Directorate of Marketing & Inspection	2424797
District Agricultural Farm, Neriamangalam	2554416
DRDA	2422221
District Animal Husbandry Officer	2360648
District Planning Office	2422290
District Collector	2423001
District Veterinary Hospital	2351264
District Co-operative Bank	2424613
District Information Officer	2354208
District Panchayat President	2425205, 2422520
District Soil Conservation Office	2423301
District Soil Testing Lab	2306169
District Veterinary Hospital	2351264
District Soil Survey Officer	2596262
FIB Regional Office, Edappally	2344935
Fisheries College, Panangad	2700337
FACT, Udyogamandal	2545106
Govt Guest House, Ernakulam	2360502
Govt guest House, Aluva	2623464
Govt Rest House ,Ernakulam	2361265
Hindusthan Insecticides	2545121
Horticon Regional production Centre	2427730
IPD Block Muvattupuzha	2232731
KERAFED	2306720
Kerala Agro Industries Corporation	2474267
Krishi Vignan Kendra, Njarakkal	2492450
Kerala Press Academy	2422275

Kerala State Warehousing Corporation	2375537	
KAMCO	2474301	
LMTCC, Aluva	2624441	
MARKETFED	2204073	
Meat Products of India, Koothattukulam	2352365	
NABARD	2338293	
NAFED	2205843	
<b>Principal Agrl. Officer (Asha Devi Varma. P.A)</b>	2422224	9846154828
e-Mail : paoekm@hotmail.com	Fax: 0484-2422224	
Project Office, ICDP, Aluva	2624441	
Pokkali Land Development Agency	2449682	
Press Information Bureau	2312153	
Plant Quarantine Funigation Station	2666145	
Pineapple Research Station, Vazhakkulam	2260832	
Rice Research Station, Vyttila	2809963	
Rubber Marketing Federation	2205790	
Raidco	2622923	
RATTC, Vyttila	2302027	
Rubber Board Regional Office	2380101	
Regional Poultry Farm, Koovapady	2523557	
Spices Board	2333610	
Tea Board, W. Island	2666523	
Tourist Bungalow, Aluva	2622637	
Vegetable and Fruit Promotion Council, Keralam (VFPCK)	2427455	
<b>THRISSUR</b>	<b>STD Code : 0487</b>	
All India Radio	2323572	
Asst. Exe. Engineer(Agri)	2385529	
Bio-Control Lab, Mannuthy	2374605	
CADA, Water Management Specialist (C.R. Ramesh)	2332445	
CPCRI	2282029	
Deputy Director, Dairy Development	2321660	
District Co-operative Bank	2420954	
District Soil Conservation Officer	2360426	
District Animal Husbandry Officer	2361216	
District Collector	2361020	

District Information Officer	2360644	
District Panchayat President	2360251	
District Soil Survey Officer	2323965	
Joint Registrar of Co-operative Societies	2360363	
Kerala Agro Industries Corporation	2310983	
Kerala State Seed Development Authority	2382894	
KFRI, Peechi	2699037	
Kerala Institute of Local Administration (KILA)	2201061	
Kerala Land Development Corporation	2331092	
Kole Development Agency	2339353	
Lead Bank (Canara Bank)	2331156	
NABARD	2321718	
NBPGR, Vellanikkara	2370499	
<b>Principal Agricultural Officer, Jessy P. Jacob</b>	0487-2444297	9744632468
e-mail : jda.tsr@gmail.com	Fax: 0487-2444297	
Ramanilayam Guest House	2332016	
Regional Soil Analytical Lab	2341590	
<b>PALAKKAD</b>	<b>STD Code : 0491</b>	
CADA, Joint Director of Agriculture	2535473	
District Animal Husbandry Officer	2520297	
District Collector	2505266	
District Co-operative Bank	2547326	
District Information Officer	2505329	
District Panchayat President	2505638	
District Soil Survey Officer	2505455	
District Soil Conservation Officer	2505860	
Guest House, Palakkad	2529966	
Dy. Director, Dairy Development Dept	2505137	
Dy. Director, Fisheries Dept	2816061	
Horticulture Development Farm, Malampuzha	2816135	
Integrated Seed Development Farm, Eruthiampathy	04923 236007	
Joint Registrar of Co-operative Societies	2505529	
KAMCO, Kanjikode	2567258	
Kerala Agro Industries Corporation	2547924	
KLD & MM Board, Dhoni	2558547	
KVK, Pattambi	04662212279	
NABARD	2880698	

Orange and Vegetable Farm, Nelliampathy	04923246225	
Project Director AHADS, Agali	0492-4254518	
<b>Principal Agricultural Officer (Saramma P. Thomas)</b>	2505075	9446151310
e-mail : paopkd@gmail.com	Fax : 0491-2527075	
RATTC, Malampuzha	2815912	
Regional Poultry Farm, Malampuzha	2555206	
State Seed Farm, Kunnannoor	2572224	
VFPC, Alathur	0492- 2222706	
<b>MALAPPURAM</b>	<b>STD Code 0483</b>	
Animal Husbandry Officer	2734917	
Arya Vaidyasala, Kottakkal	2742216	
Asst. Ex. Engineer (Agrl.)		9847411709
Block Development Office, Malappuram	2734459	
Canara Bank, Malappuram (Lead Bank)	2734881	
Cashew Research Station, Anakkayam	2848239	
District Forest Office	2734803	
District Collector	2734355	
District Co-operative Bank	2734928	
District Fisheries Office, Ponnani	0494 2666428	
District Industries Office	2734812	
District Information Office	2734387	
District Kudumbasree Office	2733470	
District Social Forestry Office	2734803	
District Panchayat President	2734564	
District Soil Conservation Officer, Manjeri	2767872	
District Soil Survey Office	2739001	
Dairy Development Office	2734944	
Kerala Agro Industries Corporation	04931 247059	
Guest House, Malappuram	2734311	
Joint Registrar of Co-op Societies	2734994	
Kelappaji College of Engg. & Technology	0494 - 2686214	
NABARD	2734084	
Precision Farming Development Centre, Thavanur	0494 3297592	
<b>Principal Agricultural Officer (Amina V.)</b>	2734916	9497349938
e-mail : paomlm@hotmail.com	Fax : 0483- 2734916	
Seed Garden Complex, Munderi	04931240090	

VFPC, Manjeri	2768987
Rest House	2736274

**KOZHIKKODE**

**STD Code : 0495**

Agrl. Urban Wholesale Market, Vengeri	2376514	
All India Radio	2366027	
Asst. Ex. Engineer (Agrl.)	2723766	
CWRDM	2351801	
Directorate of Arecanut & Spices	2369877	
Dairy Training Centre	2414579	
District Animal Husbandry Officer	2768075	
District Fisheries Officer	2380005	
District Information Officer	2370225	
District Soil Conservation Officer	2370790	
District Soil Survey Officer	2371060	
District Agrl. Farm, Koothali	0496-2662264	
District Collector	2371400	
District Panchayat President	2370550	
Dy. Director, Dairy Development	2371254	
Economic and Statistics	2370248	
FIB Regional Office	2370368	
FTC, Vengeri	2373582	
Govt. Guest House	2383920	
IISR Farm, Peruvannamoozhi	0496 2249371	
IISR-Chelavoor	2730294	
IMG	2356095	
Joint Registrar of Co-op Societies	2722334	
Kerala Agro Industries Corporation	2370676	
KVK, Peruvannamuzhi	0496 2662372	
Lead Bank	2701895	
Malabar Botanic Garden	2430939	
NABARD	2741176	
<b>Principal Agricultural Officer i/c (Ushamani R.)</b>	2370897	9496002969
e-mail : paokzd@hotmail.com	Fax : 0495 2370897	
Regional Soil Analytical Laboratory (Soil Survey)	2372040	
Spices Board	2302980	
State Seed Farm, Perambra	0496 2615234	
State Seed Farm, Puthuppady	0496 2512340	
VFPC	2225517	



**WAYANAD****STD Code : 04936**

Asst. Director, Soil Survey, Meenangadi	246330	
Canara Bank (Lead Bank)	202255	
Collectorate	202251	
District Animal Husbandry Officer	202292	
DFO, South Wayanad	263428	
District Information Officer	202529	
District Panchayat Office	202490	
District Soil Survey Officer	246330	
District Soil Conservation Office	203756	
Dy. Director, Dairy Development	202093	
District Industries Centre	202485	
ITDP Project Office	202256	
District Treasury	202639	
SBT Kalpetta	202063	
District Soil Testing Lab, Mananthavady	04935-242499	
District Planning Officer	202626	
College of Vet&Animal Science	256380	
Dist. Mission Coordinator, Kudumbasree	206589	
Dist. Co-op. Bank, Kalpetta	202650	
Govt. Guest House, Sulthan Bathery	220205	
Joint Registrar of Co-op. Societies	202267	
Hitech Soil Analytical Laboratory	207750	
Kerala Agro Industries Corporation	220316	
KVK, Ambalavayal	260411	
M.S Swaminathan Research Foundation, Kalpetta	204477	
RDO Mananthavady	04935 240222	
Coffee Board	247306	
Coffee Research Station, Chundale	202256	
NABARD	203573	
NIC	202763	
District Sericulture Officer	203774	
District Fisheries Office	255214	
<b>Principal Agricultural Officer (P.Vikraman)</b>	202506	9447526185
e-mail : paowayd@gmail.com	Fax : 04936202506	
RARS, Ambalavayal	260421	
Rural Agri Wholesale Market, Sulthanbathery	223192	
RDO, Mananthavady	04935 - 240222	

Spices Board	202605
Veterinary Hospital	202729
VFPCCK	286012

**KANNUR**

**STD Code 0497**

AIR	2748581	
Aralam Farm	0490 2444740	
Asst. Director of Agri. (Mktg)	2705078	
Asst. Ex. Engineer, Agri.	2725229	
CWRDM	2706300	
Deputy Director, Dairy Development	2707859	
District Statistical Officer	2700405	
DAF, Taliparamba	0460-2203154	
DC Bank	2700001	
District Animal Husbandry Officer	2700267	
Deputy Director, Fisheries	2731081	
District Collector	2700243	
District Forest Officer	2704808	
District Information Officer	2700231	
District Planning Officer	2700765	
District Panchayat President	2700306	
District Treasury Officer	2700683	
District Soil Conservation Officer	2768260	
District Soil Survey Officer	2712818	
FACT	2741757	
Govt.Guest House	2706426	
Joint Registrar of Co-operative Societies	2700413	
Kerala Agro Industries Corporation	2727016	
K.V.K. Panniyoor	0460-2226087	
Lead Bank Dist. Manager, Syndicate Bank	2768994	
NABARD	2700030	
NIC	2700761	
Pepper Research Station, Panniyoor	0460-2227287	
<b>Principal Agricultural Officer (P.P Rashid Ali)</b>	2706154	9446305298
e-mail : jdaknr@gmail.com	Fax : 0497-2706154	
Raidco	2700663	
Soil Conservation Office	04602 - 768260	
Soil Conservation Office	04602 768260	

Sugarcane Research Institute	2705054
RATTC, Taliparamba	0460 2203151
VFPCK,Kannur	0490 2708211

**KASARAGOD**

**STD Code : 04994**

Asst. Ex. Engineer Agri.	225570
Asst. Soil Chemist	227428
Cashew Development Officer	262272
Coconut Research Station, Nileshwar	04672 - 280358
College of Agriculture, Padannakkad	04672 - 280616
CPCRI	232893 - 95
District Animal Husbandry Officer	255483
District Collector	256400
District Co-op. Bank	220118
District Information Officer	255145
District Soil Conservation Officer	256658
District Soil Survey Officer	257450
District Veterinary Hospital	230184
Dy. Director, Dairy Development	255475
Dy. Director, Fisheries	04672 - 202537
Govt. Guest House, Kasargod	230666
Lead Bank (Syndicate Bank)	230170
NABARD	220427
<b>Principal Agricultural Officer (S.Sivaprasad)</b>	04994 255346
e-mail : paoksd1@bsnl.in	Fax : 04994 255346
RARS, Pilicode	04672-260632
KVK (CPCRI)	232993
Sub centre RARS, Vorkady	04998 202203

Fax : 232322

9496002980

## **MAJOR INSTITUTIONS IN AGRICULTURAL SECTOR**

### **I. AGRICULTURE**

#### **DEPARTMENT OF AGRICULTURE**

The Department of Agriculture in its present set up is functioning from 1987 for the overall development of agriculture in the state.

#### **VISION**

The vision of the Department is to attain self sufficiency in food production through enhanced agricultural productivity of agricultural commodities so as to make agriculture a sustainable and viable vocation providing livelihood support.

#### **MISSION**

The mission of the Department is as follows:

- Safeguard the interest of farmers, ensure food and nutritional security and support Kerala's agricultural economy.
- Achieve targeted growth rate for agriculture sector by successful implementation of various schemes.
- Protect farmers from risk through risk management cover and from unfair and deceptive business practices.
- Set up investment in agriculture.
- Ensure the safety of agricultural products by ensuring supply of quality agricultural inputs.
- Conserve and protect the state's agricultural and natural resources by promoting environmentally safe agricultural practices.

#### **FUNCTIONS**

The major functions of the Department of Agriculture are:

- Planning, implementation and monitoring of the state and central scheme for agriculture development, taking Grama Panchayat as the basic unit.
- Agricultural extension and transfer of technology and giving recognition to farmers for their outstanding efforts in producing maximum output from unit area.
- Production and distribution of improved seed and planting materials and organizing a sustainable seed programme and quality control of inputs like seeds, fertilizers and pesticides.
- Promotion of value addition, mechanization and eco friendly practices in agriculture.
- Providing market infrastructure through liaison with national organizations in the field of agriculture and also with different development agencies, Commodity Boards etc.
- Assessment of crop situation from time to time and reporting the crop losses due to natural calamities and disbursement of assistance and providing crop insurance cover to farmers.
- To take adequate steps for the farmers to secure remunerative prices for their produce.
- To evolve a cropping strategy inclusive of multiple cropping and mixed farming for maximum and sustainable use of natural resources aimed at integrated development of farm holdings.

- Ensuring the timely availability of the relevant technology, inputs and credit to farmers and organizing community efforts among them for agricultural operations.

The above functions are mainly catered through 1076 Krishi Bhavans at panchayath level and 152 Assistant Director of Agriculture offices at block level and also through the 14 Principal Agricultural Offices at district level. In addition to the above the training centres, quality control laboratories, soil testing laboratories, Agmark lab, district farms and seed farms etc also supports the activities of the Department.

#### **FARM INFORMATION BUREAU**

Farm Information Bureau is the single nodal agency to provide active and complete information support to accelerate the extension and developmental activities of the Departments of Agriculture, Animal Husbandry and Dairy Development. The Bureau takes up the propaganda works of these departments to help the farming community in availing various benefits offered by the Government. This Bureau works as a link between research stations and farming community by disseminating right scientific knowledge to the right person at the right time and providing feed back to research stations.

Head Office of Farm Information Bureau is at Thiruvananthapuram with two regional offices at Ernakulam and Kozhikode. The Technical Officers of FIB are enlisted below.

<b>Name &amp; Designation</b>	<b>Phone (Off)</b>	<b>Residence</b>	<b>Mobile</b>
<b>A.M. Sunil Kumar</b> Principal Information Officer	0471-2318186 Fax: 0471-2318186	2458167	94471 65562
<b>Media Liaison Division</b>			
<b>Jayathi K. Nair</b> Media Liaison Officer	2317314	2740786	9446340582
<b>Dr. B. Jayachandran</b> Campaign Officer	2317314	2384888	9846177009
<b>Dr. N. Baburaj</b> Asst. Director (Farm News)	2317314	2751093	9447892098
<b>Nisha S.K.</b> Agricultural Officer (Publicity)	2314358		9447890944
<b>Kerala Karshakan Division</b>			
<b>S. Suresh Kumar</b> Editor cum Press Relations Officer	2314358	2556909	9446306909
<b>C.S. Anitha</b> Asst. Editor	2314358	2435494	9446058336

<b>S. Hemalatha</b>			
Asst. Editor (Circulation)	2317314	2726787	9496154745
<b>Publication Division</b>			
<b>Elizabeth George</b>			
Publication Officer	2314358		9495554944
<b>Information Technology Division</b>			
<b>V.Suma</b>			
Assistant Director (Agri) (Technical Asst.)	2317314	2720554	9995554323
<b>Video Production Division</b>			
<b>C.F. Salins Kumar</b>			
Assistant Director (Agri)	2314358		9495666610
<b>Establishment &amp; Accounts Division</b>			
<b>Dr. J. Jayasree</b>	2314358	2317227	9446850285
Information Officer			
<b>Prakash B.S.</b>	2317314	2404476	9446074476
Accounts Officer			
<b>Regional Office, Kakkanad, Ernakulam</b>			
<b>John Sherry A.A.</b>			
Agricultural Officer	0484-2344935	0484-2238956	9447185944
<b>Regional Office, Vellimadukunnu, Kozhikode - 12</b>			
<b>M.S. Sasi</b>	0495-2370368		9447065579
Assistant Director of Agriculture			

The main activities of Farm Information Bureau is briefed below:

#### **A. PUBLICATIONS**

##### **1. Kerala Karshakan**

Kerala Karshakan, publication of Farm Information Bureau is the most effective and largest circulated monthly farm journal in Kerala. It being published regularly since 1954, still holding prime role amidst similar ventures. The journal dishes out highly valuable information on various aspects of farming, recent trends in Agriculture, Animal Husbandry and Dairy Development all dealt by people of eminence in the area concerned.

##### **2. Harithadalam**

Farm Information Bureau is publishing a fortnightly newsletter viz. 'Harithadalam' with relevant and timely news and events taking place in the field of Agriculture, Animal Husbandry & Dairy sector, research highlights etc.

##### **3. Farm Guide**

Farm Guide is an annual publication of Farm Information Bureau which contain all basic data and technical information in farm sector.

#### **4. Other Information Materials**

Information material like leaflet, booklet, posters, technical bulletins, pamphlets etc. are also published by FIB for the benefit of farming community.

#### **B. FARM NEWS OVER RADIO**

Farm Information Bureau is broadcasting Farm News over radio with the active co-operation of the All India Radio which is being broadcast regularly from Thiruvananthapuram, Alappuzha, Kochi, Thrissur, Kozhikode and Kannur Stations.

#### **C. PRESS RELEASE**

Farm Information Bureau is the authorised agency in Government sector to feed the media regarding news related to departmental activities and other programmes of the Department of Agriculture, Animal Husbandry and Dairy.

#### **D. EXHIBITION AND SEMINAR**

FIB is participating in national and international exhibitions, organising Kissan Melas at specific locations in rural areas with the active participation of subscribers of Keralakarshakan and the involvement of developmental departments. This will also give feedback for improving FIB activities.

#### **E. VIDEO PRODUCTION**

Farm Information Bureau is producing Video Programme titled "Noorumeni" and is being telecast through Dooradarshan on all Sundays at 09.30 am. It has completed 180 episodes. Repeat telecast is aired in Victors channel. Selected videos can be downloaded from the proposed FIB website.

#### **F. FARM INFORMATION BUREAU WEBSITE [www.fibkerala.gov.in](http://www.fibkerala.gov.in)**

The website provides information of current activities of the departments of Agriculture, Animal Husbandry and Dairy Development. Website offers free access to electronic versions of various publications of FIB like Kerala Karshakan, Farm Guide, Haritadalam etc. Farm news service which incorporates news and events pertaining to agriculture and allied sectors arising from panchayat to state level is an added attraction of the website.

### **STATE HORTICULTURE MISSION, KERALA**

Sunny Dale, Mead's Lane, University PO., Thiruvananthapuram.

**Mission Director: Dr. K. Prathapan**

**Office:** 2330856

**Mob:** 9446540856

The State Horticulture Mission is a society registered under Travancore Cochin Literary, Scientific and Charitable Societies Act, 1955. The Society was registered in October 2005. The State Horticulture Mission started functioning in the State since November 2005 for the implementation of National Horticulture Mission, a Centrally Sponsored Scheme. The main objective of NHM is the end to end holistic development of the horticulture sector covering fruits, mushroom, medicinal plants, spices, flowers, aromatic plants and plantation crops. The main stakeholders of the programme are farmers, SHG's, KVKs, NGOs, Department of Agriculture, KAU, Commodity Boards, Private entrepreneurs, PSU's etc.

The Mission programmes are implemented in all the districts. The crops identified for development under the Mission are Mango, Banana, Pineapple, Pepper, Ginger, Turmeric, Nutmeg, Cashew, Cocoa, Flower Crops and Vegetables. Bee keeping, vegetable seed production and Mushroom cultivation are also included in the programme.

This Financial year, SHM is implementing schemes for an amount of `77crores. The important programmes under the Mission include production and productivity improvement, post harvest

management and marketing. The components under production and productivity improvement are establishment of nurseries for production of planting materials, establishment of new gardens, rejuvenation of existing plantations, protected cultivation, organic farming, horticulture mechanisation, technology dissemination and bee keeping.

The important programmes included under post harvest management are establishment of integrated pack houses, sorting and grading units, cold storage etc. Under the marketing development, establishment of rural markets, functional infrastructure for collection and grading, strengthening of wholesale market, market intelligence, extension quality awareness and market led extension activities for fresh and processed foods are envisaged.

The implementation of the State Horticulture Mission programmes is monitored in the State level by the Executive Committee chaired by the Agricultural Production Commissioner and also the Governing body under the Chairmanship of Minister for Agriculture. At the district level, District level Committee is constituted for implementing and monitoring of SHM programme under the chairmanship of District Collector. The Deputy Director of Agriculture (H) of district is the member secretary of the District level Committee.

The National Mission on Medicinal Plants is also being implemented through State Horticulture Mission Kerala during 11 th Plan period with a total outlay of ` 49.27 crore. Out of this ` 2.24 crores has been sanctioned for the current financial year. Besides under short term Action Plan, an amount of ` 2.3867 crore has been sanctioned and released for cultivation assistance and establishment of nurseries and an amount of ` 1.05 crore has been released for the capacity building component. The mission seeks to integrate cultivation with pre and post harvest activities like development of nurseries for quality planting materials, cultivation of medicinal plants, support for post harvest management, marketing improvement of marketing infrastructure, organic/GAP certification, quality assurance and crop insurance.

The implementing agencies of the programme include Department of Agriculture, K.A.U., Department of Forest, NGO, SHG, Coconut Development Board, State Medicinal Plants Board, Cooperative Department, LSGD, and Rubber Board.

State Horticulture Mission - Kerala will support the farmer groups /clusters for signing an MOU with medicinal preparators / manufacturers, Ayush cluster, CAREKERALAM etc for buy back of identified, specific species on an agreed terms and conditions.

#### **KISSAN KERALA PROJECT**

KISSAN Kerala (Karshaka Information Systems Services and Networking) is an integrated, unique, multi modal, ICT enabled agricultural extension system, which provides several dynamic and useful information and advisory services to the farming community across Kerala. It is one of the leading citizen centre e-governance projects of the Department of Agriculture, Govt of Kerala. The project was conceived, developed and managed by the Indian Institute of Information Technology and Management - Kerala for the Department of Agriculture Govt of Kerala. The project was formally launched on 1 st November 2003. The Multi modal services of KISSAN are:

##### **1. KISSAN-Krishideepam: (Weekly Television Programme)**

Agriculture based weekly television programme is telecast through Asianet every Friday at 5.30 pm with a repeat telecast on Saturday at 8 am. Another repeat telecast follows on Monday at 5.30 pm. in the Asianet News Channel.



2.KISSAN Online Agri Advisory Service:(www.kissankerala.net)

The portal provides an online platform for the farmers to interact with the expert scientists and agricultural extension officers in an interactive way and also provides several dynamic advisory services like online Query management service ,market information,weather and crop advisory, expert system on fertilizer recommendation and so on.

3. KISSAN Online Agri Video Channel(www.youtube.com/kissankerala)

Selected videos produced by KISSAN are uploaded in youtube and can be viewed worldwide.

4. KISSAN Tele Advisory Services

The project also provides telephone based Agri advisory through a dedicated telephone number( 0471-2700965) for the farmers.The farmers can ask any questions to the agricultural scientists and seek advice for their crops.As part of this service the project has developed an extensive crop database across the has developed an extensive crop data base across the state to provide location specific advisory services.

5. KISSAN SMS based Agri Advisory services - KISSAN provides mobile SMS based agri information services to the farming community.It enable the farmers to get location specific information and alert services. The project offers voice based interactive advisory and information services to the farmers.

**Address :**

KISSAN Operations Centre, IIITM-K Project Wing, "NILA", Technopark,  
Thiruvananthapuram-695 581, Tel : 0471 3093500, 3091334, 2700947 (fax)  
E-mail: info@kissankerala.net

**KERALA STATE SEED DEVELOPMENT AUTHORITY**

**Ayyanthole, Thrissur-3**

	<u>Office</u>	<u>Residence</u>
<b>Chairman - K. Jayakumar</b> (Agricultural Production Commissioner)	0471-2327451	
<b>Joint Director - Ashok Kumar Thekkan</b>	0487-2390510 Fax.0487-2382894	0491-2553714 9447127556
	e-mail: jdakssda@hotmail.com	

The Kerala State Seed Development Authority is an autonomous body functioning under Dept. of Agriculture, Kerala. It was registered on 24th May 2000 under Travancore-Cochin Literary Scientific and Charitable Societies registration act 1955. The main objectives of the seed development authority is to carry out activities for promoting multiplication , production ,procurement, processing and marketing of paddy and other seeds.The seed production programme is carried out with the co-operation of Kerala Agricultural University, state seed farms, Krishibhavans& farmers of registered Padasekhara Samithis at panchayat level. The scheme is being implemented in all districts except Idukki and Kozhikkode in an area of 4000 ha per year. Foundation seeds are produced in various seed production centres from the breeder seeds obtained from Kerala Agricultural University. Presently the Seed Authority is handling

10,000-12,000 MT of paddy seed. In addition to this more than 35 lakh vegetable seed kits are made and distributed all over the state. Vegetable seed production programme is done under RKVY scheme in three districts viz. Malappuram, Thrissur and Palakkad. The programme envisages cultivation of 8 common types of summer vegetables in a total area of 102.48 ha with a production of 33.5t of seeds.

**DIRECTORATE OF ARECANUT & SPICES DEVELOPMENT**

**Kozhikode - 673 005**

**Director - Dr. M. Tamil Selvan** 0495-2369877  
e-mail : spicedte@nic.in 0495-2765501  
website - <http://dacnet.nic.in/spices> Fax-0495-2765777

**DIRECTORATE OF CASHEWNUT & COCOA DEVELOPMENT**

**8th & 9th Floor Kerabhavan, Kochi - 682 011**

**Director - Venkatesh N. Hubballi** 0484 2377151  
e-mail : dccd@nic.in Fax-0484-2377239  
Website : <http://dccd.gov.in>

**FERTILISERS AND CHEMICALS TRAVANCORE LTD. (FACT)**

**P.B. No. 15, Udyogamandal - 683 501**

**Chairman & Managing Director**  
**Syamal Goyal** 0484 2545418  
email: [cmd@factltd.com](mailto:cmd@factltd.com) Fax-0484-2546126

**KERALA AGRO INDUSTRIES CORPORATION LTD. (KAICO)**

**Kissan Jyothi, Fort, Thiruvananthapuram - 695 023**

**Chairman -** 2471343  
**MD - N.K. Manoj** 2470034 9847106165  
**e-mail : [mdkaicLtd08@bsnl.in](mailto:mdkaicLtd08@bsnl.in)** Fax-0471-2463188  
Website : [www.keralaagro.com](http://www.keralaagro.com)

**KERALA AGRO MACHINERY CORPORATION LTD. (KAMCO)**

**Athani PO., Ernakulam 683 583**

**Chairman -**  
**MD - S.M. Reghunathan** 0484 2474638  
e-mail : [kamco@sathyam.net.in](mailto:kamco@sathyam.net.in) Fax-0484-2474589  
Website : [www.kamcoindia.com](http://www.kamcoindia.com)

**KERALA KERAKARSHAKA SAHAKARANA FEDERATION (KERAFED)**

**KERA Tower, Water Works Compound, Vellayambalam, Thiruvananthapuram - 695 014**

**Chairman- V.P. Saseendran** 2320504 9447128038  
**MD - Dr. K. Prathapan** 2326107 9446540856  
e-mail : [kerafed@giasmd01.vsnl.net.in](mailto:kerafed@giasmd01.vsnl.net.in) Fax-0471-2326298  
Website : [www.kerafed.com](http://www.kerafed.com)

**KERALA LAND DEVELOPMENT CORPORATION (KLDC)**  
Near Ramanilayam, Chempukavu, Trissur-680020

**Chairman - Benny Kakkad** 0471-2319697 9447053340  
**MD - Dr. P.G. Raveendranath** 0471-2319697 9447103749  
email : ho@kldc.org Fax-0487-2331066  
Website : www.kldc.org

**KERALA STATE CO-OPERATIVE AGR. & RURAL DEVELOPMENT BANK (KSCARDB)**  
P.B. No. 56, Thiruvananthapuram - 695001

**President - Solomon Alex** 2460528  
**MD - S. Vijayakumar** 2462671  
e-mail : landbank@asianetindia.com Fax-0471-2462671  
Website : www.keralalandbank.org

**KERALA STATE CO-OPERATIVE MARKETING FEDERATION (MARKET FED)**  
Post Box. No. 2024, Gandhi Nagar, Kochi - 682020

**Chairman - V. Sathyaseelan** 0484-2203879  
**MD -Johnson.K.George** 0484-2203637  
e-mail : marketfedekm@dataone.in Fax-0484-2203375  
Website : www.marketfed.com

**KERALA STATE CO-OPERATIVE RUBBER MARKETING FEDERATION LIMITED (KSCRMF)**  
P.B. No. 15, Gandhi Nagar, Kochi - 682 020

**Chairman - T.H.Musthaffa** 0484 2205730  
**MD - S.Ratnakumaran** 0484 2205087  
email :info@rubbermark.com Fax-0484-2205827  
Website : www.rubbermark.com

**KERALA STATE HORTICULTURAL PRODUCTS DEVELOPMENT CORPORATION (KSHPD)**  
Udayagiri, Poojappura, Thiruvananthapuram - 695012

**Chairman -**  
**MD -Premnath . K** 2359477 944640060  
e-mail : hortcorp\_ho@yahoo.com.in Fax-0471-2359399

**KERALA STATE WAREHOUSING CORPORATION**  
P.B. No. 1727, Kochi - 682 016

**Chairman -**  
**MD - S.M. Reghunathan** 0484 2375116  
e-mail : kerwacor@gmail.com 0484 2376709 9446574301  
Website : www.kerwacor.com Fax-0484-2376339

**NADUKKARA AGRO PROCESSING COMPANY LTD.**  
Avoly P.O., Muvattupuzha-686 677

**Chairman - Adv. Paul Mathew Nellippillil** 0485-2261547, 2261451  
**MD - Murali Das S.** 0485-2261547 9388834917  
e-mail : pinefac@bsnl.in,napcjive@gmail.com Fax- 0485-2261551  
Website : www.napcl.com,www.jive.co.in

**OIL PALM INDIA LTD.**

**P.B. No. 1715, Kottayam South P.O. - 686 039**

**Chairman -**

**MD -K.N.Ravindran** 0481-2582202 9446474983  
email - opilktm@dataone.in Fax-0481-2561442  
Website-www.oilpalmindia.com

**PLANTATION CORPORATION OF KERALA**

**Kottayam - 686 004**

**Chairman -**

**MD K. Subair Khan** 0481 2578349  
e-mail : pckltd@dataone.in 0481 -2578306 9496076001  
Website-www.pcklimited.in Fax-0481-2575133, 2578448

**SMALL FARMERS AGRI BUSINESS CONSORTIUM**

**Tc 25/2149, Ushus, Thavila Lane, Thampanoor, Tvpm-1**

**President - K. Jayakumar**

2327451  
**MD - K.K. Ramakrishnan** 2322113  
e-mail : sfackerala@asianetindia.com Fax: 0471-2322110  
www.sfackerala.org 2322113

**STATE FARMING CORPORATION OF KERALA**

**Farm House, PB No: 13 ,Vettithitta P.O., Alimukku, Punalur, Kollam-689696**

**Chairman - Prof. Oommen Mathew** 0475-2223285 9447271920  
**MD - K.R. Hareendra Kumar** 0475-2225089 9447782251  
email: sfckpnlr@sancharnet.in Fax-0475-2222532  
www.sfckerala.com

**VEGETABLE AND FRUIT PROMOTION COUNCIL KERALAM (VFPCK)**

**Mythri Bhavan, Kakkanad, Kochi - 682 037**

**Director & CEO - N.Vijayan**

0484-2427544,2427455,2427560  
email : mail@vfpck.org Fax-0484-2427570  
websit : www.vfpck.org

**REGIONAL AGRO INDUSTRIES DEVELOPMENT CORPORATION (RAIDCO)**

**Head Office, S.P.C.A. Road, Kannur-670 002**

**Chairman -**

0497-2700875 9446165710  
**MD - C.P. Manojkumar** 0497-2700276 9446005920  
e-mail : raidcokannur@dataone.in Fax: 0497-2700192  
website : www.raidcokerala.com

## II. ANIMAL HUSBANDRY AND DAIRY

### KERALA LIVESTOCK DEVELOPMENT BOARD (KLDB) Gokulam, Pattom, Thiruvananthapuram - 695 004

Chairman - Subrata Biswas 2518313  
MD - Dr. Ani.S.Das 2449138 9446226600  
e-mail : kldboard@sancharnet.in  
Website : www.livestockkerala.gov.in Fax-0471-2440673

### KERALA STATE POULTRY DEVELOPMENT CORPORATION TC 30/697, Pettah, Thiruvananthapuram - 695 024

Chairman - 2468585  
MD - Dr. V. Sunilkumar 2468585 9447118008  
e-mail : kspdc@yahoo.co.in Fax-0471-2468585  
Website : www.kepcoc.nic.in

### MEAT PRODUCTS OF INDIA LTD, Edayar Koothattukulam, Ernakulam - 686 662

Chairman - E.J. Agasthi 0485-2252695 9656852410  
MD - i/c Ani S. Das 0485-2252695 9446226600  
e-mail : mpiedayar@gmail.com Fax-0485-2252695  
www.meatproductsofindia.com

### KERALA CO-OPERATIVE MILK MARKETING FEDERATION (MILMA) Pattom, Thiruvananthapuram - 695 004

Chairman - P.T. Gopala Kurup 2555993  
MD - P.K.Pathak 0471-2555992  
e-mail : milma@milma.com  
Website :: www.milma.com

### KERALA FEEDS LIMITED KALLETUMKARA, THRISSUR-680 683

Chairman - 0480-2727102  
MD - Dr. M. Sureshkumar 0480-2727105 9447754091  
e-mail : kfl@satyam.net.in Fax : 0480 2720194  
Website : www.keralafeeds.com

### KERALA DAIRY FARMERS WELFARE FUND BOARD TC 11/20, Thumbukal Manoj Mandir, Plamoodu- PMG Road, Pattom Palace P.O., TVM- 695004

Chairman - John Jacob Vallakkalil 9847978587  
Chief Executive Officer - S. Ameerjan 0471-2723671 9446978115

**III. ICAR INSTITUTION**  
**CENTRAL PLANTATION CROPS RESEARCH INSTITUTE (CPCRI)**  
**Kasaragod - 671 124**

**Director - Dr. George V. Thomas** 04994-232333 Fax : 04994232322  
**Head - Dr. P.M. Jacob** 0479-2442004  
Regional Station, Krishnapuram P.O., Kayamkulam  
e-mail: cpcricri@nic.in Fax : 0479 2445733  
Website : www.cpcricri.gov.in

**CENTRAL TUBER CROPS RESEARCH INSTITUTE (CTCRI)**  
**Sreekariyam, Thiruvananthapuram - 695 017**

**Director - Dr.S.K.Naskar** 0471-2598551 - 54  
e-mail: ctcrivtm@yahoo.com,ctcrivtm@gmail.com Fax : 0471-2590063  
Website : www.ctcri.org

**INDIAN INSTITUTE OF SPICES RESEARCH (IISR)**  
**P.B.No. 1701, Marikunnu P.O., Kozhikode - 673 012**

**Director - Dr. M. Anandaraj** 0495-2731410  
e-mail: mail@spices.res.in  
Website : www.spices.res.in Fax : 0495-2731187

**IV. COMMODITY BOARDS AND OTHER INSTITUTIONS**  
**COCONUT DEVELOPMENT BOARD (CDB)**  
**Kera Bhavan, SRVHS Road, Kochi - 682 011**

**Chairman : T.K. Jose** 0484 2375216 9447175999  
**Chief Coconut Devp. Officer - M. Thomas Mathew** 2375999  
**Secretary - Anup Kumar Nandi** 2377737  
e-mail : cdbkochi@gmail.com Fax-0484-2377902  
Website : www.coconutboard.gov.in

**COFFEE BOARD**  
**No. 1, Dr. Ambedkar Veethi, Bangalore-560 001**

**Chairman - Jawaid Akhtar** 080-22252917  
e-mail : chmcb@coffeeboard.org Fax : 080-22255557  
Website : www.indiacoffee.org  
Kerala Regional Office [Joint Director, Wayanad, Kerala] 04936-203307

**KERALA STATE LAND USE BOARD, Vikas Bhavan**  
**Thiruvananthapuram**

**Land Use Commissioner**  
**Jose Issac** 2301167  
e-mail : landuseboard@yahoo.com 2302231  
Website : www.kslub.kerala.gov.in Fax: 2300624

**RUBBER BOARD**  
**Kottayam - 686 002**

<b>Chairman - Sheela Thomas</b>	0481-2571522
Director (Training) <b>Dr.Kuruvila Jacob</b>	2353201
e-mail : chairman@rubberboard.org.in	2353325
Website : www.rubberboard.org.in	Fax-0481-2571380

**SPICES BOARD**  
**P.B. No. 2277, Kochi - 682 025**

<b>Chairman - Dr. A. Jayathilak</b>	0484 2333304
<b>Secretary (i/c) - P.M.Sureshkumar</b>	0484 2333607
Website : www.indianspices.com	Fax-0484-2334429
e-mail : spicesboard@vsnl.com	

**STATE AGRICULTURAL PRICES BOARD**  
**Statue, Thiruvananthapuram - 695 001**

<b>Chairman -</b>	2573494	
<b>Secretary - M.N. Babu</b>	2473411	9446578484
e-mail : ksapb@yahoo.com	Fax-0471-2473411	

**V. OTHER INSTITUTIONS**

**CENTRE FOR EARTH SCIENCE STUDIES(CESS)**

**Akkulam, P.B. No.7250, Thuruvikkal.P.O.,Thiruvananthapuram - 695 031**

<b>Director - Dr. N.P. Kurien</b>	2442187	9847062042
e-mail : director@cessind.org	Fax-0471-2442280	
Website : www.cessind.org		

**CENTRE FOR WATER RESOURCE DEVELOPMENT AND MANAGEMENT (CWRDM)**

**Kunnamangalam, Kozhikode - 673 571**

<b>Executive Director - Prof.(Dr) K.V. Jayakumar</b>	0495 2357151
e-mail : ed@cwrmdm.org	Fax-0495-2351808
Website : www.cwrmdm.org	

**M.S. SWAMINATHAN RESEARCH FOUNDATION, KALPETTA, Wayanad**

**Agro Bio Diversity Centre - 673121**

<b>Chairman - Dr. M.S. Swaminathan</b>	044 22541229
<b>Director - Dr. N. Anilkumar</b>	04936-204477
e-mail : cabcmssrf@gmail.com	Fax : 04936-207019
website : www.mssrf.org	

**RAJEEV GANDHI CENTRE FOR BIOTECHNOLOGY**  
**Melarannor Road, Poojappura, Thiruvananthapuram**

<b>Director - Dr. M. Radhakrishna Pillai</b>	2347973	2733819
e-mail : director@rgcb.res.in	2529400	
Website : www.rgcb.res.in	Fax-0471-2348096	

**NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND TECHNOLOGY**  
**Industrial Estate P.O., Pappanamcode, Thiruvananthapuram - 695 019**

<b>Director - Dr. Sureshdas</b>	2490324	
e-mail : director@niist.res.in	Fax-0471-2491712, 2490186	
Website: www.niist.res.in		

**TROPICAL BOTANICAL GARDEN AND RESEARCH INSTITUTE**  
**(TBGRI), Palode, Thiruvananthapuram**

<b>Director - Dr. P.G. Latha</b>	0472-2869246	9447019646
e-mail : director_tbgri@rediffmail.com		Fax-0472-2869646
Website : www.tbgrin.in		

## VI. KERALA AGRICULTURAL UNIVERSITY

Kerala Agricultural University, established in 1971 by KAU Act (Act 33 of 1971) is the premier and principal Institution providing human resources, skills and technology for agricultural development of the State. It began functional from 1st February 1972.

Governor of Kerala is the Chancellor and Minister of Agriculture is the Pro-Chancellor of the University. Vice Chancellor is the principal executive and Academic Officer of the University. The activities of University are controlled and guided by a General Council and Executive Committee.

### Telephone Numbers

Kerala Agricultural University	Tel : 0487-2370034
KAU P.O., Thrissur	Fax : 0487-2370019
	Website : www.kau.edu

	<u>Office (Code 0487)</u>	<u>Mobile</u>
Vice-Chancellor <b>Dr. K.R. Viswambharan</b>	2370034	9447071928
e-mail : vc@kau.in		
Registrar <b>Dr.P.B. Pushpalatha</b>	2370432	9447829328
Comptroller <b>R. Jayakumar</b>	2370574	9995200430
Director of Research <b>Dr. T.R.Gopalakrishnan</b>	2370497	9495328840
Director of Extension <b>Dr.P.V. Balachandran</b>	2370150	9447625698
Director of Physical Plant <b>K. Suresh Babu</b>	2370513	9447676868



Director of Students Welfare <b>E.U. Rajan</b>	2370559	9847186622
Director of Acad. <b>Dr.P.K.Asokan</b>	2371869	9447390973
Director (CITI) <b>K. Madhavan Nair</b>	2370497	9447037113
University Librarian <b>K.P. Sathyan</b>	2370229	9447435701
Communication Centre, Mannuthy	2370773	
Central Training Institute	2371104	
Sales Counter, Mannuthy	2370540	
Agricultural Technology & Information Centre, Mannuthy (ATIC)	2371340	
Public Relations Officer <b>B. Ajit Kumar</b> email-pro@kau.in	2370051	9400570051

#### A. COLLEGES FUNCTIONING UNDER THE UNIVERSITY

	Phone	Fax
1. College of Agriculture, Vellayani Thiruvananthapuram-695522	0471-2382439 2381915	0471-2381829
2. College of Horticulture, Vellanikkara, Thrissur - 680656	0487-2371652 2370822	0487-2371790
3. College of Agriculture, Padannakkad Kasargod -671328	0467-2280616	0467-2284099
4. College of Forestry, Vellanikkara, Thrissur - 680656	0487-2370050 2371018	0487-2371040
5. College of Co-op. Banking & Management, KAU (PO), Thrissur-680656	0487-2370367	0487-2370019
6. Kelappaji College of Agrl. Engg & Technology, Tavanur-73	0494-2686214	0494-2686009

#### B. REGIONAL AGRICULTURAL RESEARCH STATIONS

1. Regional Agricultural Research Station (Southern Zone), Vellayani, Thiruvananthapuram	0471-2383239	0471-2382239
2. Onattukara Regional Agricultural Research Station, Kayamkulam	0479-2443192	0479-244790
3. Regional Agricultural Research Station (Special Zone), Kumarakom, Kottayam	0481-2524421	0481-2523120
4. Regional Agricultural Research Station (Central Zone), Pattambi	0466-2212228, 2212275	0466-2212275
5. Regional Agricultural Research Station (High Range Zone), Ambalavayal, Wayanad.	04936-260421	260421
6. Regional Agricultural Research Station (Northern Zone),Pilicode, Kasaragode.	0467-2260450	2260554

### C. OTHER STATIONS OF KAU

1. Agril. Research Station, Mannuthy	0487-2370726
2. Agron. Research Station, Chalakkudy	0487 -2702116
3. ARS Sub Centre for Water Management Vellanikkara at PRS, Vellanikkara	0487-2373242
4. Agril. Research Station, Anakkayam	0483-2864239
5. Agril. Res. Station, Thiruvalla	0469-2604181
6. Aromatic & Medicinal Plants Research, Station, Odakkali	0484-2659881
7. Banana Research Station, Kannara	0487-2699087
8. Cardamon Research Station, Pampadumpara	04868-236263
9. Coconut Research Station, Balaramapuram	0471-2400621
10. Cropping System Research Station, Karamana	0471-2343586
11. Cashew Research Station, Madakkathara	0487-2370339
12. Communication Centre, Mannuthy	0487-2370773
13. Central Training Institute, Mannuthy	0487-2371104
14. Central Nursery, Vellanikkara	0487-2374332
15. Centre for Gender Studies in Agriculture & Farm Entrepreneurship Development, Vellanikkara	0487-2375611
16. Farming System Research Station, Sadanandapuram	0474-2663535
17. KVK, Ambalavayal, Wayanad	04936-260411
18. KVK, Kannur	0460-2226087
19. KVK Palakkad	0466-2212279
20. KVK Kollam	0474-2459388
21. KVK Kottayam	0481-2529631
22. KVK Thrissur	0487-2375855
23. KVK, Malappuram	0494-2686329
24. PRS, Panniyoor	0460-2227287
25. Pineapple Research Station, Vazhakulam	0485-2260832
26. Pineapple Research Station, Vellanikkara	0487-2370370
27. RRS, Moncompu	0477-2702245
28. RRS, Vyttila	0484-2809963
29. Soil Conservation Research Station, Konni	0468-2249111
30. Instructional Farm, Vellayani	0471-2383573

## KERALA VETERINARY & ANIMAL SCIENCES UNIVERSITY (KVASU)

Pookot, Lakkidi P.O., Wayanad

Kerala Veterinary & Animal Sciences University (KVASU) established in December 2010 as a full fledged University, offers education, research and extension services in the field of veterinary and animal sciences. Located in Pookot, Wayanad, KVASU has three constituent colleges- College of Veterinary and Animal Sciences, Mannuthy, Thrissur, College of Veterinary and Animal Sciences, Pookot, Wayanad and College of Dairy Science and Technology, Mannuthy.

### Telephone Numbers

Liaison Office, KVASU 0471 2550058  
Directorate of Dairy Devpt., Pattom,  
Thiruvananthapuram Website : [www.kvasu.ac.in](http://www.kvasu.ac.in)

	<u>Office</u>	<u>Mobile</u>
Vice-Chancellor <b>K. Jayakumar</b>	0471 2550058	9446440085
	e-mail : <a href="mailto:vcvu@kvasu.ac.in">vcvu@kvasu.ac.in</a>	
Registrar <b>Dr.C.B. Manomohan</b>	0487 2373043	9495040444
Director of Acad.& Res. <b>Dr. A.Jalaludeen</b>	0487 2373644	9446062400
Director of Entrepreneurship <b>Dr.S. Ramkumar</b>	-	9442066414
Finance Officer <b>Issac Thayyil</b>	0471 2550058	9447303885

### A. COLLEGES FUNCTIONING UNDER THE UNIVERSITY

	<b>Phone</b>	<b>Fax</b>
1. College of Vety., & Animal Sciences Mannuthy (PO), Thrissur-680651	0487-2370344	0487-2370388
2. College of Vety., & Animal Sciences, Pookkot	04936-256390	04936-256390
3. College of Dairy Science & Technology, Mannuthy (PO), Thrissur-680651	0487-2372861	0487-2370388

### B. OTHER STATIONS OF KVASU

1. Base Farm, Kolahalmedu, Idukki	9447386770
2. Centre for Advanced Studies in Poultry Science, Mannuthy	0487 2370117
3. Centre for Advanced Studies in Animal Breeding and Genetics, Mannuthy	0487 2374461
4. Instructional Farms, attached to COVAS, Pookot, Wayanad	04936256470
5. Livestock Research Station, Thiruvazhamkunnu, Palakkad	0487 2552536
6. University Poultry & Duck Farm, Mannuthy, Thrissur	0487 2370344

7. Pig Breeding Farm, Mannuthy, Thrissur	0487 2370378
8. Goat & Sheep Farm, Mannuthy, Thrissur	0487 2376117
9. Regional Cattle Infertility Research Centre, Kozhikode	0495 2730614
10. University Livestock farm and Fodder Research and Development Scheme, Mannuthy, Thrissur	0487 2370302
12. All India Co-ordinated Research Project on Poultry, Mannuthy, Thrissur	0487 2370237
13. Meat Plant, Mannuthy	0487 2370956
14. Dairy Plant, Mannuthy	0487 2370848
15. Veterinary Hospital, Kozhikode, Thrissur	0487 2423415
16. Veterinary Hospital, Mannuthy, Thrissur	0487 2370665
17. Cattle Breeding Farm, Thumburmuzhi	0480 2746065

### VIII. STATE AGRICULTURAL UNIVERSITIES (SAU)

Sl.No	Name and e-mail Address	Address	Phone No.
1	Acharya N G Ranga Agricultural University (ANGRAU) e-mail: angrau_vc@yahoo.com Website:www.angrau.net	Rajendranagar Hyderabad Andhra Pradesh PIN 500030	040-24015035 Fax: 040-24015031
2	Anand Agricultural University e-mail: vc@aau.in Web Site:www.aau.in	Anand 388110 Gujarat	02692-261273 Fax: 02692-261520
3	Assam Agricultural University e-mail: vc@aau.ac.in, ssb@aau.ac.in Web Site: www.aau.ac.in	Jorhat Assam PIN 785013	0376-2340013 Fax: 0376-2340001
4	Bidhan Chandra Krishi Vishwavidyalaya e-mail: vcbckv@vsnl.net Web Site: www.bckv.edu.in	Haringhatta PO, Mohanpur Nadia West Bengal PIN 741252	033-25879772 Fax: 03473-222275
5	Birsa Agricultural University (BAU) e-mail: vc_bau@rediffmail.com Web Site: www.baujharkhand.org	Kanke Ranchi - 834006 Jharkhand	0651-2450500 Fax: 0651-2450850
6	Central Agricultural University (CAU) e-mail: snpuri04@yahoo.co.in Web Site: www.cau.org.in	Imphal, Manipur PIN 795004	0385-2415933 Fax: 0385-2410414
7.	Ch. Sarwan Kumar Krishi Vishwa Vidyalaya (CSKHPKV) e-mail:vc@hillagric.ernet.in Web Site:www.hillagric.ernet.in	Palampur Himachal Pradesh Pin 176062	01894-230521 Fax: 01894-230465
8	Chandra Shekhar Azad University of Agriculture & Technology (CSAUT) e-mail: vc@csauk.ac.in Web Site: www.csauk.ac.in	Kanpur Uttar Pradesh PIN 208002	0512-2534155 Fax: 0512-2533808

9	Chaudhari Charan Singh Haryana Agricultural University (HAU) e-mail: vc@hau.ernet.in Web Site: www.hau.ernet.in	Hisar Haryana Pin 125004	01662-231640 Fax: 01662-234952
10	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth (KKV) e-mail: vcbskkv@yahoo.co.in Web Site: www.dbskkv.org	Dapoli Maharashtra Pin 415712	02358-282064 Fax: 02358-282074
11	Dr. Panjabrao Deshmukh Krishi Vishwa Vidyalaya (PKV) e-mail:vc@pdkv.mah.nic.in Web Site:www.pdkv.ac.in	Krishi Nagar Akola, Maharashtra 444104	0724-2258365 Fax: 0724-2258219
12	Dr. Yashwant Singh Parmar University of Horticulture & Forestry (YSPUH&E) e-mail:vc@yspuniversity.ac.in Web Site:www.yspuniversity.ac.in	Solan Himachal Pradesh Pin 173230	01792-252363 Fax: 01792-252242
13	Govind Ballabh Pant University of Agriculture and Technology (GBPAU&T) e-mail:vc@gbpuat.ernet.in Web Site:www.gbpuat.ac.in	Pantnagar Uttarakhand Pin 263145	05944-233333 233663 Fax: 05944-233500
14	Guru Angad Dev University of Veterinary & Animal Sciences Web Site:www.gadvasu.in	Ludhiana, Punjab 141004	0161-2553360 Fax: 0161-2553340
15	Indira Gandhi Krishi Vishwa Vidyalaya (IGKVV) e-mail: hazracr@yahoo.co.in Web Site:www.igau.edu.in	Krishak Nagar Raipur Chhattisgarh Pin 492006	0771-2100564 Fax: 0771-2442302
16	Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) Web Site: www.jnkvv.nic.in	Jabalpur Madhya Pradesh Pin 482004	0761-2681706 Fax: 0761-2681389
17	Junagadh Agricultural University (JAU) e-mail: vc@jau.in Web Site: www.jau.in	Junagadh Gujarat Pin 362001	0285-2671784 Fax: 0285-2672004
18	Karnataka Veterinary, Animal & Fisheries Science University e-mail: vckvafsu@yahoo.co.in	Nandinagar, PB.No.6 Bidar, Karnataka-01	08482-245264 Fax: 08482 - 245107
19	Kerala Agricultural University (KAU) e-mail: vc@kau.in Web Site:www.kau.edu	Vellanikkara Trichur Kerala pin 680656	0487-2371928 0487-2370034 Fax: 0487-2370019
20	Maharana Pratap University of Agriculture & Technology (MPUAT) e-mail:vc@mpuat.ac.in, vcmpuat@yahoo.co.in Web Site:www.mpuat.ac.in	University Campus Udaipur Rajasthan pin 313001	0294-2471101 Fax: 0294-2470682

21	Maharashtra Animal Science & Fishery University (MASFU) Web Site: www.mafsu.in	Seminary Hills Nagpur, Maharashtra 440006	0712-2511282 Fax: 0712-2511282
22	Mahatma Phule Krishi Vidyapeeth (MPKV) e-mail:vcmpkv@nic.in Web Site:mpkv.mah.nic.in	Rahuri Maharashtra 413722	02426-243208 Fax: 02426-243302
23	Marathwada Agricultural University (MAU) e-mail: vcmau@rediffmail.com Web Site: www.mkv2.mah.nic.in	Parbhani Maharashtra PIN 431402	02452-223002 Fax: 02452-223582
24	Narendra Dev University of Agriculture and Technology (NDUAT) e-mail: nduat@up.nic.in	Faizabad Uttar Pradesh PIN 224229	05270-262097 Fax: 05270-262097
25	Navsari Agricultural University (NAU) e-mail: vc_2004@yahoo.co.in	Navsari, Gujarat 396450	02637-283869 Fax: 02637-284254
26	Orissa University of Agriculture & Technology (OUAT) e-mail: vcouat@indiatimes.com Web Site: www.ouat.ac.in	Bhubaneswar Orissa PIN 751003	0674-2392677 Fax: 0674-2391780
27	Punjab Agricultural University (PAU) e-mail: vcpau@pau.edu Web Site: www.pau.edu	Ludhiana Punjab PIN 141004	0161-2401794 Fax: 0161-2402483
28	Rajasthan Agricultural University (RAU) e-mail: vcrau@raubikaner.org Web Site: www.raubikaner.org	Bikaner Rajasthan PIN 334006	0151-2250443 Fax: 0151-2250336
29	Rajendra Agricultural University (RAU) e-mail: rau@bih.nic.in.,	Pusa Samastipur Bihar PIN 848125	06274-240226 Fax: 06274-240255
30	Sardar Ballabh Bhai Patel University of Agriculture & Technology (SVBPUAT) e-mail: yadav_mp@hotmail.com Web Site: www.svbpmrerut.ac.in	Modipuram, Meerut, 250110 UP	0121-2411522 Fax: 0121-2411505
31	Sardarkrushinagar-Dantiwada Agricultural University (SADAU) e-mail: vc@sdau.edu.in Web Site: www.sdau.edu.in	Sardar Krushi Nagar Banaskantha Gujarat Pin 385506	02748-278222 Fax: 02748-278261
32	Sher-E-Kashmir University of Agricultural Sciences & Technology (SKUAS&T,Jammu)	Camp Office, Railway Road Jammu Jammu & Kashmir-180012	0191-2473883 Fax: 0191-2473883
33	Sher-E-Kashmir University of Agricultural Sciences & Technology of Kashmir, e-mail:vcskuastk@jk.nic.in Web Site: www.skuastkashmir.ac.in	Shalimar Campus, Srinagar Kashmir Pin 191121	0194-2462160 Fax: 0194-2462160

34 Sri. Venkateswara Veterinary University Web Site:www.vetversitytirupati.gov.in	Admn Office, Regional Library Building, Tirupathi-517502	0877-2248986 Fax: 0877-2249222
35 Tamil Nadu Agricultural University e-mail: vctnau@ac.in Web Site:www.tnau.ac.in	Coimbatore Tamil Nadu PIN 641003	0422-6611251 Fax: 0422-2431672
36 Tamil Nadu Veterinary & Animal Sciences University (TNV&ASU) e-mail: vctanuv@snsnl.com Web Site: www.tanuv@snsnl.nic.in	Chennai Tamil Nadu PIN 600051	044-25551574 Fax: 044-25551576
37 University of Agricultural Sciences (UAS) e-mail: uas-vc@uasblr.kar.nic.in eb Site: www.uasbng.kar.nic.in	Bangalore Karnataka PIN 560065	080-23332442 Fax: 080-23330277
38 University of Agricultural Sciences (UAS) e-mail: jhkulkarni@yahoo.co.in Web Site: www.uasd.edu	Krishi Nagar Dharwad Karnataka PIN 580005	0836-2447783 Fax: 0836-2448349
39 UP Pandit Deen Dayal Upadhyay pashu Chikitsa Vigyan Vishwavidyalaya e-mail: mlmadan@hotmail.com Web Site: www.upvetuniv.edu.in	Mathura Uttar Pradesh 281001	0565-2503499 Fax: 0565-2404819
40 Uttar Banga Krishi Vishwavidyalaya (UBKV)	P.O., Pundibari, Distt.Cooch Behar, West Bengal pin 736165	03582-270141 Fax: 03582-270249
41 West Bengal University of Animal & Fishery Sciences (WBUA&FS) e-mail: wbuafs@wb.nic.in	68, Khudi Ram Bose Sarani, Belgachia, Kolkata West Bengal PIN 700037	033-25563450 033-25571986
42 University of Agricultural Sciences Web Site: www.uasraichur.edu.in	Lingasugur Road, Raichur Karnataka, 584101	08532-221444 Fax : 08532-220444
43 University of Horticultural Sciences Web Site: www.uhsbagalkot.edu.in	Sector No.60, Navanagar Bagalkot, Karnataka-02	08354-201354 Fax : 08354-235154
44 Andhra Pradesh Horticultural University Web Site: www.aphu.edu.in	DCC Bank Bldg., Tadepalligudam West Godavari Dist. AP	08818-222191 Fax : 08818-22190
45 Rajmata Vijayaraje Scindia Krishi Viswa Vidyalaya	Race Course Road, Gwalior Madhya Pradesh	0751-2467673 Fax : 0751-2467673
46 Rajasthan University of Veterinary and Animal Sciences e-mail: vcrajuvas@gmail.com	Bikaner, Rajasthan	0151-2543419
47 Kerala Veterinary and Animal Sciences University e-mail: vc@kvasu.ac.in Web Site: www.kvasu.ac.in	Thiruvananthapuram Kerala	0471-2550058 Fax : 0471-2550480

### VIII. OTHER INSTITUTIONS OF ICAR

	Phone No.	Fax	e-mail/Website
Central Agricultural Research Institute Port Blair	03192-250456	03192-251068	<a href="http://cari.and.nic.in">http://cari.and.nic.in</a>
Central Arid Zone Research Institute, Jodhpur, Rajasthan		91291-2746584	root@cazri.raj.nic.in
Central Avian Research Institute, Izatnagar, Uttar Pradesh	91581-230126	91581-2301321	cari_director@rediffmail.com.
Central Inland Fisheries Research Institute, Barrackpore, West Bengal	033-25921190	033-25920388	director@cifri.gov.in
Central Institute for Research on Cotton Technology, Mumbai, Maharashtra	91-022-2412727391	022-24130835	director@circot.res.in
Central Institute for Arid Horticulture, Bikaner, Rajasthan	151-250960	151-250145	ciah@hub.nic.in
Central Institute of Brackishwater Aquaculture, Chennai, Tamilnadu	044-28554866	044-28554851	
Central Institute of Freshwater Aquaculture, Bhubaneswar, Orissa	0674-2645421	0674-2645407	cifa@ori.nic.in
Central Institute of Fisheries Education, Mumbai, Maharashtra	022-26261573	022-26261573	
Central Institute of Post Harvest Engineering & Technology, Ludhiana, Punjab	161-808669	161-808670	
Central Marine Fisheries Research Institute, Kochi, Kerala	0484-2369867	0484-2374818	
Central Plantation Crops Research Institute, Kasaragod, Kerala.	04994-232333	04994-232322	
Central Research Institute for Dryland Agriculture, Hyderabad, Andhra Pradesh	040-24530177	040-24531802	<a href="http://dryland.ap.nic.in">http://dryland.ap.nic.in</a>
Central Sheep & Wool Research Institute, Avikanagar, Rajasthan	01437-225212	01437-220163	director@cswri.raj.nic.in
Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala	0471-2598551 to 54	0471-2590063	ctcritvm@yahoo.com www.ctcri.org
Indian Agricultural Research Institute, Delhi	11-25843375	11-25846420	www.iari.res.in
ICAR Research Complex for Goa, Ela Old, Goa	040-4015344	040-4017969	director@dor-icar.org
Indian Institute of Horticultural Research, Bangalore, Karnataka	080-8466420	080-8466291	arka@ihr.res.in
Indian Institute of Pulses Research, Kanpur, Uttar Pradesh	0512-570264		root@iipr.up.nic.in
Indian Institute of Spices Research, Calicut, Kerala	0495-2730194	0495-2730294	www.iisr.org



Indian Institute of Sugarcane Research, Lucknow, Uttar Pradesh	0522-2480725	0522-2480738	iisrko@sancharnet.in
Indian Institute of Vegetable Research, Varanasi, Uttar Pradesh	0542-2635236	0542-2318504	
Indian Lac Research Institute, Namkum, Ranchi	651-2260117	651-2260202	ilri@sancharnet.in
National Academy of Agricultural Research Management, Hyderabad, Andhra Pradesh	40-24015394	40-24015912	naarm.hyd@naarm.ernet.in
Sugarcane Breeding Institute, Coimbatore, TN	422-2472621		sugaris@md3.vsnl.net.in

#### **BUREAU**

National Bureau of Animal Genetic Resources, Karnal, Haryana	0184-2267918	0184-2267654	
National Bureau of Plant Genetic Resources, New Delhi	011-25843697	011-25842495	

#### **NATIONAL RESEARCH CENTRES**

National Centre for Agril Economics & Policy Research, New Delhi	011-25847628		
National Research Centre for Banana, Thiruchirappalli, Tamilnadu	0431-2618104	0431-2618115	
National Research Centre for Cashew, Puttur, Karnataka	8251-230902	8251-234350	hrccaju@sancharnet.in
National Research Centre on Camel, Bikaner, Rajasthan	0151-2522985		
National Research Centre for Coldwater Fisheries, Bhimtal, Uttaranchal	5942-247279	5942-247693	nrccwf@sancharnet.in
National Research Centre on Equines, Hissar, Haryana	1662275787	1662276217	nrcequine@hub.nic.in
National Research Centre for Grapes, solapur, Maharashtra	02026914246	26914246	
National Research Centre for Groundnut, Junagadh, Gujarat	2852673041	2852672660	
National Research Centre for Integrated Pest Management, New Delhi	-1125843936	11-25841472	
National Research Centre for Medicinal & Aromatic Plants, Boriavi, Gujarat	0268-2578152	2578601	
National Research Centre for Mushroom, Solan, Himachal Pradesh	1792-230451	1792-230451	info@nrcmushroom.org
National Research Centre for Oilpalm, Pedavegi, Andhra Pradesh	8812-259532	8812-259521	
National Research Centre for Orchids, Pakyang, Sikkim	03592257954	24056	

National Research Centre for Weed Science, Madhya Pradesh 761-2353101 761-2353129

**PROJECT DIRECTORATES**

Project Directorate of Oilseed Research, Rajendranagar, Hyderabad 0404015344 0404017969 director@dor-icar.org  
 Project Directorate of Poultry, Rajendranagar, Hyderabad 04024017000 04024017002  
 Project Directorate of Rice Research, Hyderabad 04024015308 04024015308 project\_director@drrindia.org

**IX. INSTITUTIONS UNDER DEPARTMENT OF AGRICULTURE**

**I. KRISHI BHAVANS (Numbers in bracket indicates telephone numbers)**

Name of Block/ADA Office	Name of Krishi Bhavans
<b>THIRUVANANTHAPURAM (0471)</b>	
<b>Parassala</b> (2230923)	: Karode (2217788), Kulathoor (2217700), Chenkal (2230922), Thirupuram (2263522), Poovar (2211922), Parassala (2201622)
<b>Aryancode</b> (2256422)	: Perumpazhuthoor (2227322), Perumkadavila (2275922), Kollayil (2252322), Kunnathukal (2252122), Ottasekharamangalam (2256622), Vellarada (2244222), Amboori (2246022), Kallikadu (2272422), Aryancode (2256422).
<b>Neyyattinkara</b> (2227222)	: Athiyanoor (2227122), Kanjiramkulam (2262722), Karumkulam (2213922), Kottukal (2267122), Vizhinjam (2482422), Venganoor (2481822), Thiruvallom (2381822), Neyyattinkara (2227022)
<b>Pallichal</b> (2394322)	: Balaramapuram (2405122), Nemom (2394122), Maranalloor (2299722), Kalliyoor (2405322), Vilavoorkal (2284122), Vilappil (2286022), Marukil (2284022), TVPM. Corpn. (2338911), Pallichal (2394322)
<b>Kattakada</b> (2291022)	: Aryanadu (0472-2854922), Kuttichal (0472-2854822), Poovachal (0472-2896622), Vellanadu (0472-2883722), Vithura (0472-2858922), Uzhamalakkal (0472-2899222), Tholicode (0472-2859022), Kattakada (2290922).
<b>Nedumangad</b> (0472-2805422)	: Karakulam (0472-2370322), Aruvikkara (0472-2887722), Anad (0472-2804122), Panavoor (0472-2866422), Vembayam (0472-2831022).
<b>Chettivilakam</b> (2731322)	: Kadakampally (2740622), Ulloor (2545122), Vattiyoorkavu (2367622), Chettivilakom (2731321).
<b>Vamanapuram</b> (0472-2835122)	: Kallara (0472-2821922), Manickal (0472-2582822), Nanniyode (0472-2840022), Nellanadu (0472-2870222), Peringamala (0472-2840823), Pangode (0472-2868422), Pullampara (0472-2829922), Vamanapuram (0472-2835122).

- Kazhakuttom** (2418522) : Sreekaryam (2591722), Attipra (2412822), Kadinamkulam (2754322), Andoorkonam (2754022), Pothencode (2718022), Mangalapuram (2420098), Kazhakuttom (2418522).
- Attingal** (0470-2633122) : Azhoor (0470-2635022), Kizhuvilam (0470-2645322), Chirayinkeezhu (0470-2645422), Mudakkal (0470-2638923), Kadakavoor (2653322), Vakkom (0470-2653200), Anchuthengu (0470-2658022), Attingal Municipality (0470-2633122).
- Varkala** (0470-2608400) : Vettoor (0470-2611322), Cherunniyoor (0470-2610222), Edava (0470-2663122), Elakamon (0470-2668422), Chemmaruthy (0470-2156322), Ottoor (0470-2687022), Manampoor (0470-2620922), Varkala (0470-2608022).
- Pulimath** (0470-2836422) : Karavaram (0470-2690422), Navaikulam (0470-2690122), Pallickal (0470-2683222), Madavoor (0470-2683922), Pazhayakunnummel (0470-2674222) Kilimanoor (0470-2673422), Nagaroor (0470-2679900), Pulimath (0470-2836422).

#### KOLLAM

- Chathanur** (0474-2596655) : Chathanur(2596666), Paravoor, Adichanallur, Poothakkulam (0474-2056700), Nedumpana, Kalluvathukkal, Chirakkara.
- Punalur** (0475 - 2226261) : Pathanapuram, Piravanthur, Pattazhy South, Pattazhy North, Vilakkudy, Punalur(0475-2230958), Thalavoor.
- Chadayamangalam** (0474-2477138): Kadackal, Chadayamangalam, Elamad, Chithara, Velinallur(0474 - 2466688), Nilamel, Ittiva, Kummil.
- Sasthamkota**(0476-2837170 ) : Sasthamkota(2837110), Kunnathur, Poruvazhy, West Kallada(2013740), Sooranad North(2082917), Sooranad South.
- Kottarakkara** (0474-2453640) : Kottarakkara (2459440), Neduvathur, Kareepra(2581166), Pooyappally, Veliyam.
- Kundara** (0474-2587545) : Kundara, Perayam, Perinad, East Kallada, Munroe Island, Panayam
- Karunagappally** (0476-2014363) : Karunagappally, Thodiyur, Mynagappally(0476 - 2084262) Alappad.
- Eravipuram** (0474-2729167) : Eravipuram (0474 2726157), Mayyanad, Thrikkovilvattam, (0474 - 2093955) Vadakkevila, Kottankara, Elamballur (2580454).
- Kollam** (0474-2550771) : Thrikkadavur(2550771), Thrikkaruva, Kilikollur, Kollam, Sakhikulangara.
- Oachira** (0476-2698919) : Oachira, Clappana, K.S. Puram(0476-2642981), Thazhava.
- Chavara** (0476-2684931) : Chavara, Thevalakara, Thekkumbhagam, Panmana(0476 - 2671977), Neendakara
- Vettikkavala** (0474-2404292) : Vettikkavala(2404292) Pavithreswaram, Kulakkada, Ummanur, Mylom, Melila.
- Anchal** (0475-2270709) : Aryankavu, Thenmala, Kulathupuzha, Yeroor, Anchal(0475-2270710), Alayamon, Edamulackal, Karavalur.

#### **PATHANAMTHITTA**

- Adoor** (04734 228860) : Adoor, Enadimangalam (04734 246735), Ezhamkulam (243100), Kalanjoor, Kodumon (285198), Enathu (220585), Kadampanad (234190), Pallickal.
- Pandalam** (04734 252266) : Thonnalloor (252323), Thumpamon (209860), Pandalam-Thekkekara (223261).
- Kulanada** (04734 260689) : Kulanada (260711), Mezhuvely, Aranmula (0468 2289046).
- Thiruvalla** (0469 2631401) : Thiruvalla Municipality, Kadapra, Niranam (0469 2611255), Nedumpuram, Kuttoor (0469 2614247), Peringara (0469 2737797).
- Pullad** (0469 2660112) : Koipuram (0469 2661159), Eraviperoor (9447009410), Puramattom (0469 2752124), Ezhumattoor (0469 2655730), Thottapuzhassery (9447016820), Ayroor (9447008650)
- Mallappally** (0469 2785615) : Mallappally, Kunnanathanam (0469 2690886), Kaviyoor (0469 2619521), Kallooppara (0469 2677658), Kottanad (0469 2774442), Anicad (0469 2686476), Kottangal.
- Ranny** : Ranny-Thottamon, Ranny Angadi, Ranny Pazhavangadi, Ranny Perunad, Vadasserikkara, Chittar, Seethathode, Vechoochira, Naranampoozhy.
- Konny** (9447006950) : Konny, Mylapra (0468 222231), Malayalappuzha, Aruvappalam (0468 2240773), Thannithode, Vallicode, Pramodom (0468 2336248).
- Pathanamthitta** (0468 2237825): Pathanamthitta Municipality (0468 2270723), Omalloor (0468 2354910), Chenneerkara, Elanthoor, Kozhenchery, Mallappuzhassery (0468 2210482), Naranganam (0468 2217740), Cherukole (0468 2277427).

#### **ALAPPUZHA**

- Panavally** (0478 2522288) : Panavally (0478 2523232), Perumbalam (0478 2513131), Arookutty (0478 2878203), Thycattussery (0478 2153570), Chennam Pallipuram (0478 2153560).
- Kuthiathode** (0478 2560333) : Aroor (0478 2871014), Ezhupunna, Kodamthuruth, Kuthiathode (0478 2560333), Thuravoor(0478 - 2569400) Vayalar (0478 2159562), Pattanakkad (0478 2159530), Kadakkarappally (0478 2182848).
- Cherthala** (0478 2820152) : Cherthala Municipality (0478 2820152), Thanneermukkom (0478 2820719), Kanjikuzhy (0478 2186191), Muhamma (0478 2158233), Mararikulam North (0478 2186120), Cherthala South (0478 2157417).
- Alappuzha** (0477 2230970) : Alappuzha Municipality (0477 2230970), Mannanchery (0477 2293349), Aryad (0477 2125360), Punnapra South (0477 2129165), Punnapra North, Mararikulam South (0477 2125390)
- Haripad** (0479 2411625) : Haripad (0479 2404625), Pallipad (0479 2407715), Karthikappally (0479 2487993), Veeyapuram (0479 2319570), Cheruthana (0479 2404800), Thrikkunnapuzha (0479 2480961), Chingoli (0479 2470500), Kumarapuram (0479 2140150).
- Ambalapuzha** (0477 2279409) : Ambalapuzha South (0477 2279909), Karuvatta (0479 2149610), Purakkad (0477 2279009), Thakazhy (0477 2127818), Ambalapuzha North (0477 2280535).

- Kayamkulam**(0479 - 2444850) : Krishnapuram, Devikulangara(0479 2448866),Kandalloor, Muthukulam,Arattupuzha,Pathiyoor,Cheppad,Kayamkulam Municipality.
- Charummood** (0479 2138378) : Chunakkara(0479 2377460),Nooranadu(0479 2374041), Palamel (0479 2373172), Thamarakulam (0479 2372464), : Vallikunnam(0479 2137410), Bharanicavu(0479 2330866)
- Mavelikkara** (0479 2340488) : Mavelikara Municipality (0479 2132172), Thazhakara (0479 2359088), Chennithala (0479 2323618), Chettikulangara (0479 2348199), Thekkakara (0479 2346966).
- Chenganoor** (0479 2451998) : Chenganoor Municipality (0479 2451997), Puliyoor (0479 2466989), Mulakuzha (0479 2467544), Mannar (0479 2310800), Budhanoor (0479 2135585), Cheriyanoor (0479 2362828), Pandanadu (0479 2466849), Venmony (0479 2146868), Thiruvandoor (0479 2145590), Ala(0479 2369929)
- Ramankary** (0477 2172133) : Ramankary(0477 2172133), Veliyanad (0477 2754400), Pulincunnu (0477 2707451), Neelamperoor (0477 2710978), Kavalam, Muttar.
- Champakulam** (0477 2704986) : Champakulam (0477 2704986), Nedumudy (0477 2762185), Kainakary (0477 2171300), Edathua (0477 2210194), Thalavady (0477 2122238).

#### KOTTAYAM

- Kottayam** (9496000840) : Nattakom (9496000839), Vijayapuram (9496000841), Ayarkunnam (9496000842), Thiruvarpu (9496000843), Kumarakom (9496000844), Puthuppally (9496000845), Panachikkad (9496000846), Kottayam Municipality (9496000848), Manarkad (9496000847).
- Pampady** (9496000849) : Pampady(0481-2509860/9496000850), Meenadam (9496000851), Koroppada (9496000852), Akalakkunnam (9496000853), Pallickathode (9496000854), Elikkulam (9496000855).
- Vazhoor** (0481-2496864) : Nedumkunnam (9496000857), Kangazha (9496000858), Vellavoor (9496000859), Vazhoor (9496000860), Chirakkadavu (9496000861).
- Madappally** (9496000862) : Kurichy (9496000863), Madappally (9496000864), Thrikkodithanam (9496000865), Paippadu (9496000866), Vakathanam (9496000867), Karukachal (9496000868), Vazhappally (9496000869), Changanacherry (9496000870).
- Pala** (9496000871) : Kozhuvanal (9496000872), Mutholy (9496000873), Karoor (9496000874), Meenachil (0482-2238241/ 9496000875), Kadanad (9496000876), Bharananganam (9496000877), Pala (9496000878).
- Erattupetta** (9496000879) : Erattupetta (9496000880), Thidanad (9496000881), Teekoy (9496000882), Poonjar (9496000883), Poonjar South (9496000884), Thalanad (9496000885), Moonnilavu (9496000886), Melukavu (9496000887), Thalappalam (9496000889).
- Kanjirappally** (04828-205761) : Kanjirappally(04828 205761 / 9496000891), Manimala (9496000892), Erumely (9496000893), Parathod (9496000894), Mundakkayam (9496000895), Koottickal (9496000896), Koruthode (9446083278)

- Uzhavoor** (9496000897) : Kanakkary (9496000898), Kidangoor (9496000899), Kadaplmatom (9496000901), Veliannor (9496000902), Uzhavoor (9496000904), Ramapuram (9496000903), Marangattupally (9496000905), Kuravilangad (9496000906).
- Kaduthuruthy** (9496000907) : Kaduthuruty (9496000909), Thalayolapparambu (9496000910), Njeezhoor (9496000911), Mulakkulam (9496000913), Manjoor (04829 243887 / 9496000912), Kallara (9496000914), Velloor (9496000915).
- Ettumanoor** (9496000916) : Aymanam (9496000917), Arpookkara (9496000918), Athirampuzha (9496000919), Kumaranalloor (9496000920), Neendoor (9496000922), Ettumanoor (0481 2719866 / 9496000923).
- Vaikom** (9496000924) : T.V. Puram (9496000925), Maravanthuruth (9496000926), Udayanapuram (9496000927), Vechoor (9496000928), Thalayazham (9496000929), Chempu (9496000930), Vaikom Municipality (9496000931).

#### **IDUKKI**

- Thodupuzha**(04862 - 224530) : Manacad (04862 202146), Thodupuzha Municipality (04862 211295), Kumaramangalam (04862 211609), Edavetty (04862 211170), Muttom (04862 212311), Purapuzha (04862 273285), Karimkunnam (04862 - 242939)
- Elamdesam**(04862 - 261577) : Alakode (04862 275044), Velliattom (04862 275030), Kudayathoor (04862 255639), Karimannoor(04862 - 261715), Udumbannoor (04862 - 272820), Vannappuram (04862 247836), Kodikulam (04862 264727).
- Idukki**(04862 - 253288) : Arakulam (04862 217144), Kanjikuzhy (04862 234250), Vazhathope (04862 236763), Mariapuram (04862 205163), Kamakshy (04868 275886), Vathikudy (04868 210325).
- Kattapana**(04868 - 252545) : Erattayar (04868 256540), Kattappana (04868 224930), Ayyappancoil, Upputhara, Kanchiyar(04868 259050), Chakkupallom, Vandanmedu
- Nedumkandam**(04868- 233583): Nedumkandam(04868 - 233362), Udumbanchola, Pampadumpara, Karunapuram (04868 236980), Rajakkad, Rajakumari, Senapathy(04868 - 246021).
- Peermedu**(04869 - 252274) : Kumily(04869 - 223930), Vandiperiyar (04869 252474), Elappara, Kokkayar (04828 284377), Peruvanthanam, Peermedu
- Devikulam**(04865 - 264598) : Munnar, Vattavada, Marayoor, Kanthalloor, Santhanpara (04868 - 203702), Chinnakkanal (04868 249530), Mankulam, Devikulam.
- Adimaly**(04864 - 225997) : Bysonvalley, Konnathady(04864 - 225208), Vellathooval (04864 - 277445), Pallivasal (04865 263649), Adimaly (04864 225203).

#### **ERNAKULAM**

- Njarakkal** (0484 2499674) : Pallippuram-9847878102, Kuzhippilly-9846349023, Edavanakkad-9447152432, Nayarambalam9847682321, Njarakkal-9446364781, Elamkunnappuzha-9446157682, Mulavukad-9446518181.
- Parur** (2448664,9446490093) : Kottuvally-9495315039, Chendamangalam-9895969794, Vadakkekara-9746388388, Chittattukara-9446605795, Parur Municipality-9249120514, Ezhikkara-9446666144.

- Aluva(0484 2623120)** : Kadungalloor9447819450,Karumalloor,9446330182, Alengad 9447574513, Eloor 9495060312, Aluva Municipality 9387757744, Varappuzha 9744959531.
- Nedumbassery(0484 2470790)** : Chengamanad9446356273, Nedumbassery9447116889, Kunnukara9745961023, Parakkadavu9446219139, Puthenvelikkara 9447819353
- Kalamassery** : Kalamassery Municipality9447330314, Thrikkakara9446073457, Cheranelloor9446483530, Kadamakudy9446401754.
- Thripunithura(0484 2783435)** : Maradu9961216016, Kumbalam-Panangad9847067693, Tripunithura Municipality9995054060.
- Vyttila(0484 2301147)** : Chellanam9446071814, Kumbalangi9495427788, Kochi Corporation9745391393.
- Perumbavur(0484 2138731)** : Mudakkuzha 9447465365, Vengoor 9946184722, Koovappady 9447177596, Rayamangalam9446087843, Asamannoor9447665550, Perumbavoor Municipality944688672, Okkal9447988676.
- Angamaly(0484 - 2458737)** : Kalady 9446395098, Ayyampuzha 9447578329, Manjapra 9446000499, Malayattoor-Neeleswaram, Kanjoor9446413072, Sreemoolangaram 9446337156, Thuravoor9745853630, Karukutty9446409065, Mookkannoor 9447212375, Angamaly Municipality 9495559070.
- Keezhmad-2679001,9847169526** :Choorikkara 9895973901, Edathala 9387912246, Keezhmad 9446497793, Kizhakkambalam 9895851948, Vengola 9446018591, Vazhakkulam 9447275889
- Poothrikka-(0484 - 2755194)** : Kunnathunad9446406274, Mazhuvannur0485-2253298, Poothrikka9446567711, Thiruvaniyoor 9447666729, Aikaranad 9447179295, Vadavucode-Puthencruz 9446338470.
- Muvattupuzha-(0485 -2831811)** : Marady 9447209804, Valakom 9447112662, Paipra 9961101201 Kalloorkad 9446388366, Ayavana 9446746107, Avoly 9847597525, Manjalloor 9446823232, Arakkuzha 9446417234, Muvattupuzha Municipality 9446825586.
- Kothamangalam-(0485 - 2826004)** : Kothamangalam Municipality, Nellikuzhy 9947008010, Kottappady 9447581205, Pinidimana 9446531717, Keerampara 9446909521, Kavalangad 9447066308, Varappetty 9495983433, Pothanicaad9744675552, Paingottoor 9446310414, Kuttampuzha 9995327447.
- Piravom-0485-2241124** : Palakkuzha9446335730, Koothattukulam 9447128220, Elenjy 9446197679, Piravom 9446012499, Maneed 9446120572, Ramamangalam 9447102053, Thirumarady 9847273295, Pampakuda 9744984983
- Mulanthuruthy-(0485-2743801)**: Edakkattuvayal (9446036808), Amballoor 9446983896, Mulanthuruthy 9446740485, Chottanikkara 9446750669, Thiruvankulam 9497025404, Udayamperoor 9446695017.

#### THRISSUR

- Wadakkanchery (9496003604)** : Desamongalam 9496003605, Eumapetty 9496003606, Kadangode 9496003607, Mulloorkkara 9496003608, Mundathikode 9496003609, Thekkumkara 9496003610, Varavoor 9496003611, Veloor 9496003612, Wadakkanchery 9496003613

<b>Pazhayannur</b> (9496003576)	: Chelakkara 9496003577, Kondazhy 9496003578, Panjal 9496003579, Pazhayannur 9496003580, Thiruvilwamala 9496003581, Vallatholnagar 9496003582
<b>Chavakkad</b> (9496003503)	: Chavakkad 9496003504, Guruvayoor 9496003505, Kadappuram 9496003506, Orumanayur 9496003507, Pookode 9496003508, Punnayurkulam 9496003509, Punnayur 9496003510, Thakkad 9496003511, Vadakkekad 9496003512
<b>Chowannur</b> (9496003520)	: Arthat 9496003521, Choondal 9496003522, Chowannur 9496003523, Kadavallur 9496003524, Kandanisery 9496003525, Kattakampal 9496003526, Porkulam 9496003527, Kunnamkulam 9496003528
<b>Mullassery</b> (9496003562)	: Elavally 9496003563, Mullassery 9496003564, Venkidangu 9496003565, Pavaratty 9496003566
<b>Ollukkara</b> (9496003567)	: Kolazhy 9496003568, Madakkathara 9496003569, Nadathara 9496003570, Ollukkara 9496003571, Pananchery 9496003572, Puthur 9496003573, Vilvattom 9496003574, Thrissur 9496003575
<b>Cherpu</b> (9496003513)	: Avinissery 9496003514, Cherpu 9496003515, Koorkanchery 9496003516, Ollur 9496003517, Paralam 9496003518, Vallachira 9496003519
<b>Anthikkad</b> (9496003489)	: Anthikkad 9496003490, Chazhoor 9496003491, Manaloor 9496003492, Thannyam 9496003493
<b>Puzhakkal</b> (9496003583)	: Adat 9496003584, Arimpur 9496003585, Avanur 9496003586, Ayyanthole 9496003587, Kaiparambu 9496003588, Tholur 9496003589, MG Kavu 9496003590
<b>Thalikulam</b> (9496003591)	: Engandiyoor 9496003592, Nattika 9496003593, Thalikulam 9496003594, Valappad 9496003595, Vatanappilly 9496003596
<b>Kodakara</b> (9496003536)	: Alagappanagar 9496003537, Kodakara 9496003538, Mattathur 9496003539, Nenmanikkara 9496003540, Pudukkad 9496003541, Thrikkur 9496003542, Varanharappilly 9496003543
<b>Vellangallur</b> (9496003597)	: Padiyur 9496003598, Poomangalam 9496003599, Puthenchira 9496003601, Vellangallur 9496003602, Velookkara 9496003603
<b>Chalakydy</b> (9496003494)	: Kadukutty 9496003495, Kodassery 9496003496, Koratty 9496003497, Meloor 9496003498, Pariyaram 9496003499, Vettilappara 9496003501, Chalakydy 9496003502
<b>Irinjalakuda</b> (9496003529)	: Karalam 9496003530, Kattoor 9496003531, Muriyad 9496003532, Parappukkara 9496003533, Porathissery 9496003534, Irinjalakuda 9496003535
<b>Mala</b> (9496003549)	: Aloor 9496003550, Annamanada 9496003551, Kuzhur 9496003552, Mala 9496003553, Poyya 9496003554
<b>Mathilakam</b> (9496003556)	: Edathuruthy 9496003557, Kaipamangalam 9496003558, Mathilakam 9496003559, Perinjanam 9496003560, S.N.Puram 9496003561
<b>Kodungalloor</b> (9496003544)	: Edavilangu 9496003545, Eriyad 9496003546, Methala 9496003547, Kodungalloor 9496003548



### PALAKKAD

- Alathur** (04922-2222480) : Alathur, Erimayur, Kavassery, Tarur (0492 2206333), Kannambra, Puthukode, Vandazhi, Kizhakkencherry (0492 2203852), Vadakkencherry.
- Kuzhalmannam** (04922-2241519) : Kuzhalmannam (95492 2273696), Kannadi, Thenkurissi, Kuthanur, Mathur, Kottayi, Peringottukurissi, Pudussery, Peruvemba.
- Nenmara**(04922-3241519) : Nenmara, Ayilur, Melarcode, Elavencherry, Pallassena, Nelliampathy.
- Kollengode**(0492-3263172) : Kollengode, Muthalamada, Vadavannur, Pudunagaram, Koduvayur, Kodumba, Elappully, Polpully (0492 3207002).
- Chittur** (0492 3224854) : Chittur-Thathamangalam Municipality (0492 3228016), Vadakarapathy, Kozhinjampara (0492 3273032), Eruthempathy, Perumatti, Pattancherry, Nalleppilly (95492 3282361)
- Palakkad** (0491 2545964) : Palakkad Municipality, Marutharode (2525713), Malampuzha, Akathethara, Kongad, Mundur, Mannur, Keralasserri, Pudupariyaram, Mankara, Pirayiri, Parli.
- Mannarkkad**(0492-42124475) : Mannarkkad, Karimba, Pottasseri, Kumaramputhur, Kottappadam, Karakurissi, Thachanattukara, Thachampara, Alanellur.
- Sreekrishnapuram**(0466-2260920) : Karimpuzha, Vellinezhi, Cherpulasserri (0466 2284452), Trikkadeeri, Katampazhipuram, Pookkottukavu, Sreekrishnapuram.
- Agali**(0492-4211344) : Agali, Sholayur, Pudur.
- Shoranur**(0466-2220019) : Shoranur Municipality, Ottapalam, Lekkidi Perur, Ananganadi, Vaniamkulam, Chalavara, Ambalappara.
- Pattambi**(0466-2212627) : Pattambi, Koppam, Muthuthala, Ongallur, Parathoor, Vallappuzha, Kulukallur, Nellya, Thiruvegappura, Vilayur (0466 2315806).
- Trithala**(0466-2270820) : Thrithala, Thirumittacode, Nagalasserri, Chalisseri, Anakara, Pattithara, Kappar.

### MALAPPURAM

CODE 0494

- Perumpadappa**(0494 2676914) : Perumpadappa (9846058539), Veliyancode (2676802), Maranchery (2676824), Nannamukku (2656546), Alamkode (2656544).
- Thavanur** (2116563) : Edappal (2690117), Vattamkulam (0494 2690130), Thavanur (2686010), Ponnani (9446351706), Kaladi (9447678436), Ezhuvathiruthy (9447243331)
- Tirur** (2428461) : Purathur (2561040), Triprangode (2565330), Thirunavaya (2641939), Vettom (2630078), Thalakkad (2427346), Tirur (9847838985), Mangalam (9447463510)
- Valanchery** (2638953/2646413) : Kuttippuram (2607952), Irimbilyam (2621950), Valanchery (2638953), Athavanadu, (2112515), Marakkara (2618899), Edayur (9446431434)
- Ponmundam**(2442677) : Valavanur (2547024), Kalpakanchery (2549857), Thanur (2440014), Ponmundam (2117715), Cheriyaundam (9446049588), Thanalur (9947468867), Ozhur (9847442313), Niramuruthur (9496751950), Perumannaclari (9995550116)

- Parappanangadi** (2418200) : Nannambra (2110785), Tirurangadi (2464178), Parappanangadi (2419344), Moonniyoor(2120381),Vallikkunnu,(2400417) Thenchipalam(0483 2120239), Peruvallloor (2435888).
- Vengara** (2450415) : Thennala (2489108), Parappur(2102880), Othukkungal (2123185), Vengara(2449488), A R Nagar (2104470), Edarikode (0483 2118118), Kannamangalam(2942000).
- Malappuram** (0483 2735673) : Ponmala (0483 2705494), Kottakkal (0483 2747678), Malappuram Municipality(2735673), Oorakam(2450631), Pookkottur(2105908), Morayur (0483 2105909), Anakkayam (0483 2100798).
- Angadippuram**(04933 281630): Moorkanadu (04933 201198), Puzhakkatiri (04933 210015), Kodur (0483 2734856), Pulamanthole (9387676768), Kuruva (9947070633), Angadippuram (9447666729), Mankada (9544988887), Makkaraparambu (9446408561), Kottilangadi (9846769030)
- Perinthalmanna** (04933 218874) : Elamkulam(04933 208585), Aliparamba(04933 207054), Thazhekcode(04933 259162), Perinthalmanna (04933 228873), Vettathur (04933 245845), Keezhattoor (04933 217178), Melattur (04933 211163), Edappatta (04933 278279).
- Manjeri** (0483 2760051) : Manjeri Municipality(0483 2769166), Pulpatta (0483 2821110), Kavanur(2869105), Areacode(2110987), Oorangattiri (0483 2853974), Keezhuparamba(2859300), Cheekode(2103020), Kuzhimanna (0483 2755460),Muthuvalloor(2301020)
- Wandoor** (04931 211870 / 245568) : Pandikkad (0483 2780858), Thuvvoor (0483 286333), Karuvarakundu (217699), Porur (04931 211800), Thiruvali (04931 2700248), Wandoor (245951), Edavanna (0483 2216333), Trikkalangode(2100675), Mampad (04931202290).
- Kondotty** (2103100) : Pallikkal (9497810812), Kondotty (0483 2715099), Chelembra(0483 2891104), Cherukavu(0483 2794456), Pulikkal (0483 2794430), Vazhayur(0483 2833682), Vazhakkad (2728970), Nediyruppu(0483 2794450).
- Nilambur**(04931 222714) : Nilambur(04931 221224), Karulai(04931 271400), Amarambalam (04931 262574), Challiyar(04931 207087), Moothedam (04931 272866), Chungathara (232919), Edakkara (279710), Vazhikkadavu(203170), Kalikavu(214644), Chokkadu(215099), Pothukal(243750).

#### KOZHIKODE

- Vadakara** : Chorode, Onchiyam, Azhiyur, Eramala, Vadakara Municipality
- Tuneri** : Tuneri, Edachery, Vanimal, Valayam, Chekkiad, Purameri
- Kunnummel** : Nadapuram, Naripetta, Kayakkodi, Kavilumpara, Velom, Kuttiadi, Maruthonkara, Kunnummel.
- Thodannur** : Maniyur, Ayanchery, Thiruvallur, Villiappalli.
- Kozhikode** : Calicut City Corporation, Clavanna, Beypore, Kadalundi, Cheruvannur-Nallalam, Feroke, Ramanattukara, Perumanna.

<b>Kakkur</b>	: Thalikulathur, Elathur, Chelannur, Kakkodi, Kakkur, Nanminda, Marikkuni
<b>Koyilandy</b>	: Koyilandy, Chemanchery, Changottukavu, Arikkulam, Mooddadi.
<b>Mukkom</b>	: Peruvayal, Mavoor, Kuruvattoor, Chathemangalam, Kunnamangalam, Kodenchery, Mukkom, Karassery, Kodyathur.
<b>Koduvally</b>	: Madavoor, Koduvally, Kizhakkoth, Omassery, Puduppady, Thamarassery, Thiruvambadi, Koodaranhi.
<b>Ulliyeri</b>	: Unnikulam, Panangad, Kottoor, Ulliyeri, Atholy, Balussery, Maduvannur, Koorachundu.
<b>Thikkodi</b>	: Payyoli, Thikkodi, Keezhariyur, Thurayur, Meppayur.
<b>Perambra</b>	: Perambra, Kayanna, Nochad, Cheruvannur, Koothali, Changaroth, Chakkittapara.

#### WAYANAD

<b>Kalpetta</b> (04936 207544)	: Kalpetta, Vythiri, Meppadi, Pozhuthana, Thariode, Padinharathara, Kottathara, Vengappally, Kaniyambetta, Muttill, Muppainad.
<b>Bathery</b> (04936 227210)	: Bathery (04936 220040), Meenangadi (04936 246280), Poothadi, Ambalavayal, Nenmeni, Noolpuzha, Pulpally, Mullankolly.
<b>Mananthavady</b> (04935-244422)	: Mananthavady, Thirunelly, Thavinhal, Edavaka (04935 246697), Vellamunda (04935 277360), Thondernadu, Panamaram.

#### KANNUR

<b>Payyanur</b> (04985-209588)	: Karivellur, Ramanthali, Payyanur(04985-202261), Kankole, Peringome, Eramam (04985 278750), Kadannapalli (04985 277192), Cheruthazham, Kunhimangalam, Madai, Ezhome, Matool, Cherupuzha.
<b>Taliparamba</b> (0460 2205135)	: Pariyaram, Cherukunnu, Kannapuram, Pappinisseri(0497-2788953), Kalliassery, Andhur(0497-2780450), Taliparamba, Kurumathur, Pattuvam, Chapparapadavu, Alakode (0460 2284374, Udayagiri, Naduvil, Chengalayi (0460 2260888), Narath.
<b>Iritty</b> (0490-2486160)	: Keezhallur, Mattanur, Koodali, Payam (0490 2422455), Thillankeri, Keezhur, Aralam (0490 2456130), Ayyankunnu (0490 2456059).
<b>Kannur</b> (0497-2706886)	: Kannur, Puzhathi, Valapattanam, Pallikunnu, Chirakkal, Azhikode.
<b>Edakkad</b> (0497-2824590)	: Edakkad, Peralasseri, Anjarakandy, Elayavoor, Chelora, Chembilode, Munderi, Muzhapilangad, Kadambur.
<b>Irikkur</b> (0460 2247320)	: Mayyil (0460 2275210), Irikkur, Sreekantapuram, Payyavoor, Padiyur, Eruvassy, Kolacheri, Kuttiattoor (0490 2790480), Malapattam, Ulikkal (0460 2254222).
<b>Thalasseri</b> (0490 2344607)	: Thalasseri, Chokli (0490 2330366), Dharmadam, Eranholi (0490 2389022), Kadirur (0490 2388523), Kariyad (0490 2394701), Kodyeri (0490 2358243), Kottayam Malabar (0490 2360968), New Mahe (0490 2336144), Peringalam, Pinarayi (0490 2385283).

**Kuthuparamba** (0490 2362090): Kuthuparamba(23060825), Panoor (0490 2318570), Vengad (0490 2385237), Chittariparamb, Kunnothuparamb (0490 2550808), Mangattidam (0490 2368061), Mokeri(0490-2317067), Panniyannur (0490 2373150), Pattiam(2367180), Trippangottur.

**Peravoor**(0490 2443215) : Peravoor, Kanichar, Kelakam (0490 2416101), Kolayad(2303384), Kottiyur (0490 2431177), Maloor (0490 2401200), Muzhakunnu (0490- 2458460).

#### **KASARAGOD**

**Kasaragode (04994-226108)** : Bedadka, Chemnad, Chengala, Delampady, Karadka, Kasargode, Madhur, Muliya, Mogralputhur 04994-23006, Kuttikol.

**Manjeshwar** (04998 216013) : Vorkady, Manjeshwar, Meenja, Mangalpady, Paivalike, Bellur, Kumbala, Puthige, Enmakaje, Bediadka (04998 286696), Kumbadaje.

**Kanhangad** (04672 207355) : Ajanur, Balal (04672 242897), Kanhangad, Kodom Belur (04672 346100), Uduma, Pallikkara, Pullur-Periya, Panathady, Madikai, Kallar.

**Nileshwar** (04672 280357) : Nileshwar (04672 284581), Kinanur-Karindalam (04672 294297), West Eleri, East Eleri, Kayyoor-Cheemeni, Cheruvathoor (04672 260461), Padne, Trikaripur, Pilicode, Valiyaparamba

## **2 DEPARTMENTAL FARMS**

<b>Name of Farm</b>	<b>Planting materials available</b>
<b>THIRUVANANTHAPURAM</b>	
District Agricultural Farm, Peringamala 95472-2846488	Cashew graft, Arecanut, Guava Layer, Sapota Layer, Mango graft, Jack graft, Clove seedlings, Cinnamon seedlings, Minor fruit plants, Tuber crops, Ornamental plants, Pepper cuttings, Vegetable seeds.
Banana Nursery, Peringamala 95472-2812418	Banana suckers, Arecanut seedlings, Guava layer, Mango graft, Minor fruit plants, Ornamental plants, Pepper cuttings, Cashew grafts, Sapota.
State Seed Farm, Ulloor 2545122	Paddy seeds, Vegetable seeds
State Seed Farm, Chirayinkil 95470-2643222	Paddy seeds, Vegetable seeds
Coconut Nursery, Valiyathura 2508222	Coconut seedlings, Vegetable seeds
Coconut Nursery, Kazhakuttam 2413195	Coconut seedlings, Vegetable seeds
<b>KOLLAM</b>	
District Agricultural Farm, Anchal 0475 2270447	Pepper cuttings, Cashew grafts, Sapota graft, Mango graft, Jack graft, Banana suckers, Citrus, Pineapple suckers, Cherry layers, Papaya seedlings, Medicinal plants, Mushroom spawn, Pseudomonas, TC Banana Plants etc.

Cashew Farm, Kottarakkara State Seed Farm, Kottarakkara	Cashew graft Paddy seeds, Vegetables seeds, Tuber Crops, Banana Suckers
State Seed Farm, Karunagapally State Seed Farm, Kadakkal Coconut Nursery, Karunagappally	Vegetable Seeds. Paddy seeds, Vegetable seeds, Banana suckers. Coconut seedlings.
<b>PATHANAMTHITTA</b>	
State Seed Farm, Adoor (04734-227868)	Paddy seeds, Pepper cuttings, Banana suckers, Vegetable seeds, Tubers.
State Seed Farm, Pulladu 0469 2661917 Sugarcane Seed Farm, Pandalam 04734 252500	Paddy seeds, Pepper cuttings, Banana suckers, Tuber crops. Sugarcane setts, Banana suckers, Arecanut seedlings, Pepper cuttings.
<b>ALAPPUZHA</b>	
District Agricultural Farm, Mavelikkara 0479 2357690	Coconut seedlings, Pepper cuttings, Cashew graft, Guava layer, Sapota graft, Jack graft, Clove seedlings, Nutmeg graft, Ginger (Rhizome), Turmeric (Rhizome), Mango graft, Banana suckers, Pineapple suckers.
State Seed Farm, Arunoottimangalam (0479 2358700)	Paddy seeds, Pepper cuttings, Vegetable seeds, Banana suckers.
State Seed Farm, Veeyapuram 0479 2318490	Paddy seeds, Banana suckers, Vegetable seeds.
<b>KOTTAYAM</b>	
District Agricultural Farm, Kozha 04822 234016	Pepper cuttings, Guava layer, Sapota graft, Mango graft, Jack graft, Clove seedlings, Cinnamon, Ginger (Rhizome), Turmeric (Rhizome), Banana suckers, Minor fruit plants, Cocoa graft, Mangosteen, Tubers, Vegetable seeds.
State Seed Farm, Kozha State Seed Farm, Valachira 04829 283306	Paddy seeds, Vegetable seeds Paddy seeds, Pepper cuttings
<b>IDUKKI</b>	
District Agricultural Farm, Arikuzha 04862 278599	Coconut seedlings, Pepper cuttings, Vegetable seeds, Cashew graft, Jack grafts, Banana sucker, Ginger, Turmeric, nutmeg graft, minor fruits, cocoa seedlings.
State Seed Farm, Karimannoor 04862 263560 State Vegetable Farm, Vandiperiyar 04869 253543	Paddy seeds, Pepper cuttings Pepper cuttings, Cool season Vegetable seeds, Ornamental plants, Banana sucker, Ginger rhizome, turmeric rhizome, Coffee seedlings.
<b>ERNAKULAM</b>	
District Agrl. Farm, Neriya Mangalam 0485 2554416	Coconut seedlings, Pepper cuttings, Cashew graft, Arecanut seedlings, Guava layer, Sapota graft, Jack graft, Mango graft, Clove seedlings, Nutmeg graft, Ginger, Turmeric, Cinnamon, Banana suckers

State Seed Farm, Aluva	Paddy seeds, Vegetable seeds
State Seed Farm, Okkal	Paddy seeds, Banana suckers, Vegetable seeds
Coconut Nursery, Vyttila	Coconut seedlings
<b>THRISSUR</b>	
District Agricultural Farm, Chelakkara 9496003614	Coconut seedlings, Pepper cuttings, Cashew graft, Banana suckers, Tapioca setts, Minor fruit plants, Vegetable seeds
State Seed Farm, Mannuthy 9496003619	Paddy seeds, Coconut seedlings, Pepper cuttings, Guava layer, Sapota graft, Mango graft, Jack graft, Cinnamon graft, Minor fruit plants, Vegetable seeds
State Seed Farm, Kodassery 9496003617	Paddy seeds, Mango graft, Vegetable seeds, Pepper cuttings.
State Seed Farm, Nadavarambu 9496003622	Paddy seeds, Tubers, Pepper cuttings
State Seed Farm, Edathuruthy 9496003618	Paddy seeds
State Seed Farm, Pazhayannor 9496003621	Coconut seedlings, Vegetable seeds, Paddy seeds, Pepper cuttings
State Seed Farm, Pananchery 9496003620	Paddy seeds, Pepper cuttings, Sapota graft, Mango graft, Minor fruit plants, Vegetable seeds, Tubers
Coconut Nursery, Irinjalakuda	Coconut seedlings, Pepper cuttings, Banana suckers, Vegetable seeds.
<b>PALAKKAD</b>	
Horticulture Development Farm, Malampuzha 0491 2815912	Pepper cuttings, Vegetable seeds, Ornamental plants, Guava layer, Sapota graft, Mango graft, Jack graft, Clove seedlings, Banana suckers, Minor fruit plants, Tubers, Coconut seedlings, Cinnamon.
Orange & Vegetable Farm, Nelliyampathy 0492 3246225	Coffee, Acid lime, Vegetable seeds, Ornamentals, Fruit products
Integrated Seed Development Farm, Eruthiampathy	Cashew graft, Guava layer, Sapota graft, Mango graft, Vegetable and pulses seeds, Tubers, Pepper cuttings.
Central Orchard, Pattambi	Sapota graft, Mango graft, Tubers, Minor fruit plants, Anthurium, Vegetable seeds
State Seed Farm, Alathur	Paddy seeds, Vegetable seeds
State Seed Farm, Kunnanoor 0491 2572224	Paddy seeds, Pepper cuttings, Banana suckers, Ornamental plants
State Seed Farm, Kongadu	Paddy seeds, Vegetable seeds
State Seed Farm, Ananganadi	Paddy seeds
State Seed Farm, Muthalamada	Paddy seeds, Vegetable seeds, Cinnamon, Ginger

	<b>MALAPPURAM</b>
Seed Garden Complex, Munderi 04931 240090, 9947537375	Pepper cuttings, Guava layer, Ginger & Turmeric (Rhizome), Banana suckers, Minor fruit plants, Tapioca setts, Ornamentals, Vegetable seeds
District Agricultural Farm, Chungathara 04931 205080, 9446305041	Pepper cuttings, Cashew grafts, Guava layer, Sapota graft, Jack graft, Turmeric & Ginger (Rhizome), Banana suckers, Vegetable seeds, Minor fruit plants.
State Seed Farm, Chokkad 04931 212144, 9447613717	Paddy seeds, Banana suckers, Vegetable seeds, Pepper cuttings.
State Seed Farm, Thavannoor	Paddy seeds, Banana suckers, Arecanut seedlings.
State Seed Farm, Anakkayam 0483 2100935, 9447630390	Paddy seeds, Pepper cuttings, Banana suckers, Vegetable seeds
Coconut Nursery, Parappanangadi 0494 - 2419490, 9446680086	Coconut seedlings, Vegetable seeds, Pepper cuttings, Cashew grafts, Ginger & Turmeric (rhizomes), Banana suckers
	<b>KOZHIKODE</b>
District Agricultural Farm, Koothali 0496 2662264	Pepper cuttings, Cashew grafts, Arecanut seedlings, Guava layer, Sapota graft, Mango graft, Jack graft, Clove seedlings, Nutmeg graft, Banana suckers, Pineapple suckers, Vegetable seeds, Ginger, Turmeric, Tubers, Medicinal plants.
State Seed Farm, Perambra	Paddy seeds, Vegetable seeds, Pepper cuttings
State Seed Farm, Pudupadi	Paddy seeds, Vegetable seeds, Banana suckers, Pepper cuttings.
Coconut Nursery, Thikkodi 0496 2606788	Coconut seedlings, Pepper cuttings, Vegetable seeds, Banana suckers, Tubers, Ornamental plants.
	<b>KANNUR</b>
District Agricultural Farm, Taliparamba 0460 2203154	Pepper cuttings, Cashew graft, Arecanut, Guava layer, Sapota graft, Mango graft, Jack graft, Clove seedlings, Nutmeg graft, Cinnamon, Ginger, Turmeric, Banana suckers, Other fruit plants, Vegetable seeds
State Seed Farm, Vengad	Paddy seeds, Vegetable seeds, Pepper cuttings, Cashew grafts
State Seed Farm, Kankole	Paddy seeds, Pepper cuttings
Coconut Nursery, Palayad	Coconut seedlings, Pepper cuttings, Vegetable seeds.
	<b>KASARAGOD</b>
State Seed Farm, Kasaragod	Paddy seeds, Pepper cuttings, Arecanut seedlings, Banana suckers, Ornamentals, Vegetable seeds
State Seed Farm, Pullor	Paddy seeds, Pepper cuttings, Ornamental Plants, Vegetable Seeds, Banana suckers
Cashew Development Office 04994 262272	Cashew graft, Mango graft, Vegetable seeds.

### 3. SOIL TESTING LABORATORIES IN KERALA (STL)

1. District STL, Parottukonam, Nalanchira.P.O., Thiruvananthapuram - 695 015.
2. STL, Mamoottil Kadavu, Kavanadu.P.O., Kollam.
3. STL, Sanadanapuram, Alappuzha -3. 0477-2266862
4. STL, Kadakkad, Pandalam, Pathanamthitta.
5. STL, Kozha P.O., Kottayam.
6. STL, Areekuzha P.O., Thodupuzha, Idukki.
7. STL, Vyttila, Ernakulam, Kochi-19.
8. STL, Chempukavu, Thrissur - 20.
9. STL, MelePattambi, Palakkad - 679 306.
10. STL, Up Hills, Malappuram - 5. 0483-2731390, 9947288069
11. STL, Tikkoti, Kozhikkode.
12. STL, Mananthavady, Wayanad.
13. STL, Karimbum P.O., Thaliparambu Kannur.
14. STL, Seed Farm Complex (Agri.), A.T. Road, Kasaragod.

### 4. CENTRAL SOIL PLANT HEALTH CENTRE (CSPHC)

CSPHC, Parottukonam, Nalanchira P.O., Thiruvananthapuram - 695 015. Phone : 2530578

### 5. MOBILE SOIL TESTING LABORATORIES (MSTL)

1. MSTL, Parottukonam, Nalanchira P.O., Thiruvananthapuram - 695 015.
2. MSTL, Mamoottil Kadavu, Kavanadu.P.O., Kollam.
3. MSTL, Sanadanapuram, Kalarkodu, Alappuzha
4. MSTL, Chempukavu, Thrissur - 20.
5. MSTL, MelePattambi, Palakkad - 679 306.
6. MSTL, Up Hills, Malappuram - 5. 0483-2731390, 9447202953
7. MSTL, Tikkoti, Sanadanapuram, Kozhikkode.
8. MSTL, Karimbum P.O., Alappuzha - 3.Thaliparambu Kannur.
9. MSTL, Kozha.P.O., Kottayam.
10. Central STL, Parottukonam, Nalanchira.P.O., Trivandrum.

### 6. FERTILIZER QUALITY CONTROL LABORATORIES (FQCL)

1. FQCL, Parottukonam, Nalanchira P.O., Thiruvananthapuram - 695 015.
2. FQCL, Pattambi, Palakkad - 679 306.

### 7. PESTICIDE TESTING LABORATORY (PTL)

PTL, Parottukonam, Nalanchira P.O., Thiruvananthapuram - 695 015.



## 8. SEED TESTING LABORATORIES (STL)

- |   |  |
|---|--|
| 1. State Seed Testing Laboratory,<br>Kalarcode, Alappuzha - 688 003<br>0477 2268615 | 2. Seed Testing Laboratory,<br>Parottukonam, TVM - 15. |
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## 9. AGMARK GRADING LABORATORIES OF KERALA (SAGL)

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|--|--|
| 1. SAGL, Agricultural Wholesale Market,<br>Venpalavattom, TVM-695 029. | 6. SAGL, Vyttila, Thammanam P.O.,<br>Ernakulam.  |
| 2. SAGL, Thirumullavaram,<br>Kollam - 12.                              | 7. SAGL, KAEP Building, Opp.<br>St.Joseph's Womens College,<br>Irinjalakuda P.O., Thrissur District. |
| 3. SAGL, PM 354/12, Illrd Floor,<br>P.P. Road, Pathanamthitta.         | 8. SAGL, Pallimukku,<br>Thathamangalam P.O., Palakkad.   |
| 4. SAGL, Beach Road,<br>Sea View Ward, Alappuzha - 12.                 | 9. SAGL, Malaparamba P.O.,<br>Kozhikode - 9.   |
| 5. SAGL, Near H.D. Commercial Centre,<br>Kottayam - 1.                 | 10. SAGL, Civil Station, F block,<br>Kannur.   |

## 10. BIO-CONTROL LAB, MANNUTHY

Phone : 0487-2374605, 9496003629

The Bio-control Lab, Mannuthy in Thrissur district is functioning under the Department of Agriculture with the aim of producing maximum quantity of bio-control agents and distributing to the farmers at reduced price. Biocontrol agents such as *Trichogramma* (Tricho cards @Rs.30/cc) to control Rice leaf folder, American boll worm, Pink boll worm, Rice yellow stem borer, Tomato fruit borer; *Trichoderma viride* (Rs.70/kg) to control most of the soil and seed borne plant pathogens; *Pseudomonas fluorescens* (Rs.50/kg) to control fungal and bacterial diseases, chitin enriched *Pseudomonas* (Rs.60/kg) to control leaf roller of paddy; *Crysoperla carnea* to control aphids, young larvae, insects eggs, mites, thrips etc. of field crops; *Beauveria bassiana* (Rs.50/kg) to control rice bug, BPH, coleopteran borers etc. *Verticillium lecanii* (Rs. 50/kg) to control soft bodied insects are produced here.

## 11. BIO-TECHNOLOGY AND MODEL FLORICULTURE CENTRE KAZHAKUTTAM, THIRUVANANTHAPURAM

The Centre is equipped with a tissue culture laboratory carrying out micro propagation work in Banana, Orchids, Anthurium, Pepper and Vanilla. A sales counter for sale of planting materials and seeds produced in Departmental Farms, a mobile sales unit for sale of Departmental products like Jam, Jelly, Squash etc. apart from planting materials is also functioning here.

## 12. STATE BIO-FERTILIZER LABORATORY (SBFL)

- |   |  |
|---|--|
| 1. SBFL, Parottukonam, Nalanchira P.O.<br>Thiruvananthapuram-695 015,<br>Phone : 0471-2530578 | 2.BFL, Mele Pattambi P.O<br>Palakkad Dist. - 679 306 |
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## 13. PARASITE BREEDING STATIONS (PBS)

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|--|--|
| 1. PBS, Kunnumpuram, Vanchiyoor P.O.     | 6. PBS, Irinjalakuda, Thrissur Dist. 680 121 |
| 2. PBS, State Agmark Grading Lab, Kollam | 7. PBS, Parappanangadi, Malappuram           |
| 3. PBS, Kalarcode, Sanadanapuram P.O.    | 8. PBS, Tikkodi, Kozhikode Dist.             |
| 4. PBS, Kottayam                         | 9. PBS, State Seed Farm, Kasaragod-671121    |
| 5. PBS, Vyttila, Ernakulam Dist.         |  |

## 14. KERALA CENTRE FOR PEST MANAGEMENT

**MANCOMPU, THEKKEKKARA P.O., ALAPPUZHA, Ph: 0477 2702683**

The Pest Surveillance Unit under the Department of Agriculture at Mancompu in Alappuzha district is functioning with the aim of making farmers aware of need based plant protection activities. This unit undertakes pest and disease surveillance in paddy fields by adopting scientific techniques such as Light Trap Survey, Fixed Plot Survey and Rapid Rowing Survey.

## 15. STATE AGRICULTURE MANAGEMENT & EXTENSION TRAINING INSTITUTE (SAMETI)

**AGRICULTURAL WHOLESALE MARKET CAMPUS, ANAYARA P.O., TVPM 695 029**  
Phone : 0471 2446840

## 16. REGIONAL AGRICULTURAL TECHNOLOGY TRAINING CENTRES

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|--|--|
| (1) Thiruvananthapuram, Kazhakkuttom;    | (2) Kottayam, Kozha;                     |
| (3) Ernakulam, Vyttila;                  | (4) Palakkad, Malappuzha (0491 2815912); |
| (5) Kannur, Thaliparamba (0460 2203151). |  |

## 17. FARMERS TRAINING CENTRES

- |  |   |
|--|---|
| 1. Farmers Training Centre<br>Pandalam, Pathanamthitta | 2. Farmers Training Centre, Vengeri,<br>Kozhikode, Phone 0495 2373582 |
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## 18. ENGINEERING OFFICES

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|--|---|
| 1. Executive Engineer (Agri)<br>Sanadanapuram P.O.<br>Kalarkode, Alappuzha - 686 668<br>0477 2266084   | 3. Research Engineer<br>Research Testing & Training Centre<br>Vellayani P.O, Thiruvananthapuram |
| 2. Executive Engineer (Agri),<br>Puthiyara P.O, Kozhikode - 673 004<br>Engineering Workshop<br>Vellayani (Thiruvananthapuram), Kavanad (Kollam), Kalarcode (Alappuzha), Manganam (Kottayam), |   |

Vytilla (Ernakulam), Aranattukara (Thrissur), Malampuzha (Palakkad), Anakkayam (Malappuram), Puthiyara (Kozhikode), Thana (Mannore), Kasaragode (Kasaragode).

#### 19. AGRICULTURAL WHOLESALE MARKETS

1. Agricultural Urban Wholesale Market, Venpalavattom, Anayara P.O., Thiruvananthapuram-29, Phone : 0471 2558930
2. Agricultural Rural Wholesale Market, Nedumangad P.O., Thiruvananthapuram, Phone : 0472 2813932
3. Agricultural Urban Wholesale Market, Maradu, Nellur P.O. Ernakulam - 682 304, Phone : 0484 2701042
4. Agricultural Rural Wholesale Market, Muvattupuzha, Ernakulam -686 673, Phone : 0484 2813200
5. Agricultural Urban Wholesale Market, Kadamputtuthazham, Vengeri, Kozhikode - 673 010, Phone : 0495 2376514
6. Agricultural Rural Wholesale Market, Ammayi Palam, Sultan Bathery P.O., Wayanad-673592, Phone: 0493-6223192

#### X. INSTITUTIONS UNDER DEPARTMENT OF ANIMAL HUSBANDRY

Directorate (1), DAHO Office (14), District Veterinary Centre (14), Veterinary Poly Clinics (48), Veterinary Hospitals (214), Veterinary Dispensaries (856), Mobile Veterinary Hospitals/Dispensaries (9), Motor Boat Veterinary Hospital (1), Mobile Farm Aid Units (17), Intensive Cattle Development Projects (9), Regional Artificial Insemination Centers (37), ICDP Sub Centers (1359), SLBP Head Quarters (1), SLBP Deputy Director's Office (3), Calf Feed Subsidy Scheme Office (5), Institute of Animal Health and Veterinary Biologicals (1), Chief Disease Investigation Office (1), Cattle Sterility Office (1), Avian Disease Diagnostic Lab (1), State Laboratory for Livestock Marine & Agri. Products (1), Livestock Management Training Centers (5), Central Veterinary Stores (3), Livestock Farms (4), Goat Farms (3), Pig breeding farms (1), Pig breeding units (5), Central Hatchery (1), Regional Poultry Farms (7), District Poultry farms (1), Duck Farm (1), Turkey farm (1), Rinderpest Eradication Scheme (1), RP Check posts (17), RP Mobile Units (2), RP Vigilance Units (6), Poultry Training Centre (1), Chick Sexing School (2)

#### INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS, PALODE

Name of Vaccines available		Other Products
Ranikhet disease vaccine (F1)		
Ranikhet disease vaccine (K)		1. California mastitis Reagent
Fowl pox vaccine	Duck plague vaccine	2. Salmonella pullorum coloured antigen
Anthrax spore vaccine	BQ	3. Brucella abortus coloured antigen
H S (B)	H S (OA)	4. Mastitis Kit
Swine Fever vaccine		5. Antibiotic sensitivity Kit
		6. Diluents
		7. Rose Bengal plate Test Antigen

#### MAJOR DIAGNOSTIC LABORATORIES

1. Chief Disease Investigation Office, Palode, Thiruvananthapuram.
2. Avian Disease Diagnostic Laboratory, Thiruvalla.
3. State Laboratory for Livestock, Marine and Agriculture Products (SLMAP) Maradu, Ekm
4. Rabies & Leptospirosis Diagnostic Laboratory, Dist. Vetry. Centre, Kollam

#### LIVESTOCK FARMS

1. District Livestock Farm, Kodappanakkunnu, Thiruvananthapuram District. 0471-2732962
2. Jersey Farm, Vithura, Thiruvananthapuram District. 0472-2849664
3. Jersey Farm Extension Unit, Chettachal, Thiruvananthapuram District. 0472-2185364
4. Regional Poultry Farm, Kodappanakkunnu, Thiruvananthapuram 0471-2730804
5. Pig Breeding Unit, Parassala, Thiruvananthapuram. 0471-2223099
6. Goat Farm, Parassala, Thiruvananthapuram 0471-2223099
7. Goat Breeding Unit, Kodappanakkunnu, Thiruvananthapuram District.
8. Buffalo Breeding Farm, Kuriottumala, Kollam District. 0475-2227485
9. Regional Poultry Farm, Kollam District.(Turkey Farm)
10. Goat Breeding Unit, Kuriottumala, Kollam District.
11. Duck Farm, Niranam, Pathanamthitta District. 0469-2711898
12. Central Hatchery, Chengannur, Alappuzha District. 0479-2452277
13. Pig Farm, Kappad, Kottayam District.
14. Regional Poultry Farm, Mannarcaud, Kottayam District.
15. District Poultry Farm, Kolani, Idukki District. 04862-221135
16. Regional Poultry Farm, Koovappady, Ernakulam District. 0484-2523559
17. Pig Breeding Unit, Kunnankulam, Trissur District. 04885 210287
18. Goat Farm, Attapadi, Palakkad District.
19. Regional Poultry Farm, Malampuzha, Palakkad District. 0492-4224162
20. District Poultry Farm, Athavanadu, Malappuram District. 0494-2615103
21. Regional Poultry Farm, Chathamangalam, Kozhikode District. 0495-2287481
22. Goat Farm, Komeri, Kannur District. 0490-2302307
23. Regional Poultry Farm, Mundayad, Kannur District. 0497-2721168

#### LIVESTOCK MANAGEMENT TRAINING CENTRES (LMTC)

1. LMTC, Kodappanakkunnu, Thiruvananthapuram Dist. 0471-2732918
2. LMTC, Aluva, Ernakulam Dist. 0484-2624441
3. LMTC, Mundayad, Kannur Dist. 0497-2721168
4. LMTC, Malampuzha, Palakkad District.
5. LMTC, Thalayolaparambu
6. Poultry Training Institute, Central Hatchery Chengannur, Alappuzha District. 0479-2452277
7. LMTC, Kollam 0474-2535345

#### ANIMAL WELFARE DIVISION

The prevention of cruelty to Animals Act 1960 (59 to 60) and subsequent amendment rules are in force to prevent the infliction of unnecessary pain or suffering on animals. In 1904, the first SPCA was

established at Thiruvananthapuram, followed by another at Kannur. as of now SPCAs have been registered under Societies registration Act in all 14 districts. Government of India has enacted an amendment to the PCA Act 1960-Establishment and Regulation of SPCAs Rules 2001. Every district has to have an SPCA as per the provision in the rule. A separate cell will be constituted at the Directorate of Animal Husbandry by redesignation to provide nodal function and to strengthen the animal welfare activities, for its effective monitoring and reporting of the schemes both by Government of India & Government of Kerala.

#### AVAILABILITY OF POULTRY LAYERS, BROILERS, HATCHING EGGS

##### THIRUVANANTHAPURAM

	RPF Kudappanakunnu	Day old layer chicks
	KSPDC Kudappanakunnu, Pettah	Eggs, chicks.
<b>KOLLAM</b>	Turkey Farm, Kollam	Turkey poult and eggs.
	KSPDC Kottiyam	Eggs, chicks, ducklings.
<b>ALAPPUZHA</b>	Central Hatchery, Chengannur	Day-old layer chick, hatching and table eggs, poultry equipments. Quails & Quail eggs.
<b>PATHANAMTHITTA KOTTAYAM</b>	Duck Farm, Niranam Regional Poultry Farm, Manarcaud	Ducklings, hatching duck eggs. Layer, Day old chicks hatching and table eggs.
<b>IDUKKI</b>	District Poultry Farm, Kolani, Thodupuzha	Layer & Quail (for meat purpose)
<b>ERNAKULAM</b>	District Poultry Farm, Koovapady	Day-old layer chicks and hatching eggs.
<b>PALAKKAD</b>	Regional Poultry farm, Malampuzha	Day-old layer chicks, table and hatching eggs.
<b>MALAPPURAM</b>	District Poultry Farm, Athavanad	Layer pullets.
<b>KOZHIKODE</b>	Regional Poultry Farm, Chathamangalam	Layer chicks, table eggs, hatching eggs Quails, Broiler Chicks and rabbits
<b>KANNUR</b>	Regional Poultry Farm, Mundayad	Day-old layer chicks, hatching and table eggs.

#### XI. INSTITUTIONS UNDER DEPARTMENT OF DAIRY DEVELOPMENT

##### DAIRY TRAINING CENTRES

1. The Principal, Dairy Training Centre, Pattom P.O., Thiruvananthapuram- 04 0471-2440911
2. The Principal, Indigenous Milk Product Training and Development Centre, Building No. X-171, North of Oachira Temple, Oachira P.O, Kollam - 690526 0476-2698550
3. The Principal, Dairy Training Centre, Building No. XIII/1060, Erayilkadavu, Kottayam-1 0481-2302223
4. The Principal, Dairy Training Centre, Building No.1/1, Alathur, Palakkad 0492-2226040
5. The Principal, Dairy Training Centre, Beypore North P.O., Kozhikode 15 0495-2414579

#### SEWAGE FARM

1. The Superintendent, Sewage Farm, Valiathura, Thiruvananthapuram -8 0471-2501706

#### DISTRICT OFFICES

1. The Deputy Director of Dairy Development, Pattom P.O, Thiruvananthapuram 695 004 0471-2554986
2. The Deputy Director of Dairy Development, House No. KC/XL – II 4855, Beach Road, Kollam 0474-2748098
3. The Deputy Director of Dairy Development, Building No.59/28, Near Kallupalam, Alappuzha-688 011 0477-2252358
4. The Deputy Director of Dairy Development, Building No.143/VI, Mini Civil Station, Thodupuzha, Idukki 0486-2222099
5. The Deputy Director of Dairy Development, Civil Station, Illrd Floor, Pathanamthitta. 0468-2223711
6. The Deputy Director of Dairy Development, No. KMC – 13/1060, Erayilkadavu, Kottayam-686 001 0481-2562768
7. The Deputy Director of Dairy Development, Civil Station, Kakkanad, Cochin, Ernakulam-682 030 0484-2422310
8. The Deputy Director of Dairy Development, Mini Civil Station, II Floor Chempookavu, Trichur-680 020. 0487-2321660
9. The Deputy Director of Dairy Development, Civil Station, Palakkad-678 001 0491-2505137
10. The Deputy Director of Dairy Development, Civil Station, Malappuram-676 505 0483-2734944
11. The Deputy Director of Dairy Development, Vth Floor, New Block, Civil Station, Kozhikode – 673 020 0495-2371254
12. The Deputy Director of Dairy Development, Civil Station, Kalpetta North P.O., Wayanad - 673 122 04936-202093
13. The Deputy Director of Dairy Development, Civil Station, 'F' Block, Ground Floor, Kannur - 670 002 0497-2707859
14. The Deputy Director of Dairy Development, Civil Station, Ist Floor, 'F' Block, Vidya Nagar P.O., Kasargod - 671 123 0499-4255475

#### QUALITY CONTROL UNITS

1. The Quality Control Officer, Dairy Development, Pattom P.O., Thiruvananthapuram – 695 004
2. The Quality Control Officer, Dairy Development Department, Bldg. No.KC/XL-11-4855, Beach Road, Kollam
3. The Quality Control Officer, Dairy Development Department, Building No.59 / 28, Near Kallupalam, Alappuzha – 688 111
4. The Quality Control Officer, Dairy Development Department, Building No.143 / VI, Mini Civil Station, Thodupuzha, Idukki.
5. The Quality Control Officer, Dairy Development Department, Civil Station, Illrd Floor, Pathanamthitta
6. The Quality Control Officer, Dairy Development Department, No. KMC – 13/1060, Erayilkadavu, Kottayam – 686 001
7. The Quality Control Officer, Dairy Development Department, Municipal Jai Hind Market Building, 'C' Block, Hall No.6, Trichur 680 001
8. The Quality Control Officer, Dairy Development Department, Civil Station, Kakkanad, Cochin, Ernakulam – 682 030

9. The Quality Control Officer, Dairy Development Department, Civil Station, Palakkad - 678 001
10. The Quality Control Officer, Dairy Development Department, Civil Station, Malappuram – 676 505
11. The Quality Control Officer, Dairy Development Department, V th Floor, New Block, Kozhikode – 673 020
12. The Quality Control Officer, Dairy Development Department, Civil Station, Kalpetta North (P.O), Wayanad – 673 122
13. The Quality Control Officer, Dairy Development Department, Civil Station, 'F' Block, Ground Floor, Kannur – 2
14. The Quality Control Officer, Dairy Development Department, Civil Station, I floor, 'F' Block, Vidyanagar P.O., Kasargod – 671 123

## **OTHER OFFICES UNDER DEPARTMENT OF DAIRY DEVELOPMENT**

### ***Dairy Extension Service Units***

#### **1. THIRUVANANTHAPURAM DISTRICT**

1. **Thiruvananthapuram Rural**, Kodunganoor P.O., Thiruvananthapuram
2. **Varkala**, Block Panchayat Office, Cherinnyoor P.O., Thiruvananthapuram
3. **Kilimanoor**, Block Office Building, Chenthikunnu, Kilimanoor P.O., Thiruvananthapuram
4. **Vamanapuram**, Kallara P.O., Near KSEB, Thiruvananthapuram
5. **Perumkadavila**, Near Perumkadavila Block Panchayat Office, Perumkadavila P.O., Thiruvananthapuram
6. **Vellanad**, Mahila Samajam Building, Near Block Panchayat Office, Vellanad P.O., Thiruvananthapuram
7. **Parassala**, Mini Civil Station, 1 Floor, Hall No.3, Parassala P.O., Thiruvananthapuram
8. **Athiyannur**, Block Panchayat Hall, Aralumoodu P.O., Thiruvananthapuram
9. **Chirayinkil**, House No.C P.I.U984, Thiruvananthapuram-695 304
10. **Nemom**, Block Panchayat Office, Malayinkezhu, P.O., Thiruvananthapuram
11. **Nedumangad**, Revenue Tower, Nedumangad P.O., Thiruvananthapuram
12. **Kazhakkuttam**, Pothenkode Block Panchayat Office, Kazhakkuttam P.O., Thiruvananthapuram - 695 301.

#### **2. KOLLAM DISTRICT**

1. **Yeroor**, Yeroor P.O., Kollam.
2. **Chathannur**, Chathannur P.O., Kollam.
3. **Chadayamangalam**, Building No.481/1, Chadayamangalam P.O., Kollam.
4. **Vettikavala**, Sree Narayana N.S.S. Karayogam Building, Vettikavala P.O., Kottarakkara, Kollam.
5. **Naduvilanchery**, Perinadu, Enchivila P.O., Kollam.
6. **Cherumood**, Vellimon P.O., Kollam.
7. **Oachira**, Building No. 397, Ksheera Nagar, Oachira P.O., Kollam.
8. **Pathanapuram**, Building No.V/045.K.P. Road, Pidavoor P.O., Pathanapuram, Kollam.
9. **Sasthamkotta**, Koickal Vadakathil Building, Mamakkara P.O. Kollam.
10. **Karunagappally**, Mini Civil Station, Karunagappally P.O., Kollam.
11. **Chavara**, Karambtheekkathil, Cherusseribhagam P.O., Chavara, Kollam.
12. **Kottarakkara**, Block Office, E.T.C. Kottarakkara, Kollam.
13. **Mukhathala**, Service Co-operative Bank Bldg., Kollam.

### 3. PATHANAMTHITTA DISTRICT

1. **Elanthur**, Civil Station, II Floor, Pathanamthitta.
2. **Mezhuveli**, Mezhuveli Grama Panchayat, Kulanada Block, Pathanamthitta.
3. **Adoor**, Adoor P.O., Pathanamthitta.
4. **Thiruvalla**, Revenue Tower, IV Floor, Tiruvalla, Pathanamthitta.
5. **Mallappally**, Mallappally P.O., Pathanamthitta.
6. **Ranni**, Pathanamthitta.
7. **Pandalam**, First Floor, Block Panchayat, Pandalam P.O., Pathanamthitta - 689 501.
8. **Koippuram**, Commat Buildings, Pullad P.O., Koipuram, Pathanamthitta - 659 548.
9. **Konni**, Konni Block Panchayat Building, Elakollur P.O., Pathanamthitta.

### 4. ALAPPUZHA DISTRICT

1. **Ambalappuzha**, Building No.59/28, Near Kallupalam, Alappuzha - 688 011
2. **Mavelikkara**, Mavelikkara P.O., Alappuzha
3. **Harippad**, Harippad P.O., Alappuzha - 696 514
4. **Thycattussery**, Via Cherthala, Alappuzha - 688 528
5. **Chengannur**, 3rd floor, Mini Civil Station, Cheganuur, Alappuzha
6. **Cherthala**, Mini civil station, Cherthala P.O., Alappuzha - 688 524
7. **Bharanikkavu**, Building No. 303, C/o Karimulakal milk Society, Komalloor P.O., Alappuzha
8. **Aryad**, Block Panchayat Building, Kalavoor P.O., Alappuzha
9. **Muthukulam**, 2nd Floor, Mini Civil Station, Kayamkulam P.O., Alappuzha
10. **Veliyanad**, Building No. 289, Ramankary P.O., Alappuzha
11. **Champakkulam**, Bldg. No. C.P. 2/276, Mamkombu, Thekkekkara, Kuttanad, Alappuzha - 690 572
12. **Pattanakkad**, Near Thuravoor Grama Panchayath, Thuravoor P.O., Alappuzha.

### 5. KOTTAYAM DISTRICT

1. **Meenachil**, Kottayam.
2. **Pala**, Lalam Block Panchayat Building, Anthinadu P.O., Kottayam.
3. **Pampady**, Pampady P.O., Kottayam.
4. **Poonjar**, Sri Avittom Thirunal Memorial Library Building, Poonjar P.O., Kottayam.
5. **Changanacherry**, V<sup>th</sup> Floor, Revenue Tower Changanacherry, Kottayam - 1.
6. **Vaikkom**, Thekkenada P.O., Kottayam - 686 142.
7. **Vazhoor**, House 9A, Nedumkunnam Panchayat, Kottayam.
8. **Kaduthuruthy**, Building No.3/661, Kaduthuruthy P.O., Kottayam.
9. **Kanjirappally**, Mini Civil Station, Kanjirappally P.O., Kottayam.
10. **Ettumanoor**, Block Panchayat Building, Ettumanoor P.O., Kottayam.
11. **Uzhavoor**, Building No. 403(B), Ward No.IX, Marangattupally P.O., Kottayam.
12. **Pallom**, I<sup>st</sup> Floor, Vadavathoor Kasheera Vyavasaya Co-operative Society No. 4172, Vadavathoor P.O., Kottayam.

### 6. IDUKKI DISTRICT

1. **Idukki**, 3rd Floor, Mini Civil Station, Thodupuzha, Idukki.
2. **Devikulam**, Devikulam P.O., Idukki
3. **Elamdesam**, Mass Buildings, Karimannoor P.O., Thodupuzha, Idukki-685 581.
4. **Adimali**, Adimali P.O., Idukki - 685 561.
5. **Vazhavara**, Vazhavara P.O., Idukki.



6. **Nedumkandam**, Building No. 3/457, Nedumkandam P.O., Idukki.
7. **Thadiyampadu**, Thadiyampadu P.O., Idukki.
8. **Peerumedu**, Peerumedu P.O., Idukki.

#### **7. ERNAKULAM DISTRICT**

1. **(Vytila unit)** Mini Civil Station, Thrippunithura P.O., Pin: 682 301.
2. **Paravoor**, II Floor, Door No.4/428/29, Mini Civil Station, North Paravur, Ernakulam - 13.
3. **Angamali**, Block Panchayath Bldg., Angamali P.O., Ernakulam.
4. **Aluva**, Old Private Bus Stand, Municipal Building, XII/220, Ernakulam - 683 101.
5. **Parakkadavu**, Chengamanadu P.O., Parakkadavu, Ernakulam - 683 578.
6. **Koovappady**, Perumbavoor, Ernakulam.
7. **Vazhakkulam**, Bldg.No.VII/445, Chembarakki, South Vazhakkulam P.O., Ernakulam.
8. **Pattimattom**, Pattimattom P.O., Ernakulam
9. **Muvattupuzha**, College Road, Muvattupuzha P.O., Ernakulam - 686 661.
10. **Kothamangalam**, Revenue Tower, 5<sup>th</sup> Floor, XXVI/533/G4/A, Kothamangalam, EKM
11. **Mulamthuruthy**, Bank Building No.23, Mulamthuruthy P.O., Ernakulam.
12. **Piravom**, Piravom P.O., Ernakulam.
13. **Edappally**, Civil Station, Kakkanad, Ernakulam.
14. **Vypin**, Vypin Block Panchayat, Kuzhuppilly, Ayyampilly P.O., Ernakulam - 682 501.
15. **Palluruthy**, Block Panchayat Office, Palluruthy, Cochin, Ernakulam - 682 006

#### **8. THRISSUR DISTRICT**

1. **Mala**, Vikas Bhavan, Mala P.O, Thrissur
2. **Kumaranalloor**, Block Panchayat Building, Kumaranalloor P.O, Thrissur
3. **Anthikkad**, Anthikkad P.O, Thrissur
4. **Ollukkara**, Block Panchayat Building, Ollukkara P.O, Thrissur - 680 655
5. **Mullassery**, Mullassery P.O, Thrissur
6. **Thalikkulam**, Mini Civil Station, Valappad P.O, Thrissur
7. **Mathilakam**, Block Panchayat Building, Mathilakam P.O, Thrissur
8. **Kodungalloor**, Mini Civil Station, Kodungalloor P.O, Thrissur
9. **Kodakara**, Block Development Office, Pudukkad P.O, Thrissur
10. **Irinjalakkuda**, Mini Civil Station, 2<sup>nd</sup> floor, Irinjalakkuda P.O, Thrissur
11. **Palakkal**, Block Panchayat Building, Palissery P.O, Thrissur-680 027
12. **Pazhayannoor**, Mini Civil Station, Chelakkara P.O, Thrissur- 680 582
13. **Chowwannoore**, Chowwannoore Block Panchayath Compound, Kanipayyur P.O., Kunnankulam, Thrissur
14. **Chalakkudy**, Chalakkudy Block, Panchayat Compound, Chalakkudy P.O, Thrissur
15. **Chavakkad**, Room No.38, Third floor, Mini Civil Station, Thrissur
16. **Vellangalloor**, Vellangalloor P.O, Thrissur
17. **Trichur**, Puzhakkal Mini Civil Station, Chempukkavu Thrissur

#### **9. PALAKKAD DISTRICT**

1. **Palakkad**, Civil Station, Palakkad - 678 001
2. **Chittoor**, Nattukal P.O, Palakkad - 678 554
3. **Nenmara**, Gourisankar Shopping Complex, Room No.15, Palakkad - 678 508

4. **Kuzhalmannam**, Block Panchayat Building, Kuzhalmannam - 678 702
5. **Attappady**, Agali P.O, Palakkad
6. **Kollengodu**, Kollengode P.O, Palakkad
7. **Pattambi**, Mini Civil Station, Pattambi P.O, Palakkad
8. **Thrithala**, Kootanad P.O, Palakkad - 679533
9. **Malampuzha**, Akathethara Panchayath Shopping Complex, Building No.V/164 A, Room No, 9810, Akathethara P.O, Malampuzha, Palakkad
10. **Mannarkkad**, Building No.V/367, Kumaramputhur, Mannarkkad P.O, Palakkad
11. **Ottappalam**, Vaniyamkulam grama Panchayat Building, Vaniyamkulam P.O, Palakkad
12. **Sreekrishnapuram**, Building No.7/461, Sreekrishnapuram Grama Panchayat, Palakkad
13. **Alathur**, Vandoor Road, Alathur, Palakkad

#### 10. MALAPPURAM DISTRICT

1. **Vengara**, Kooriyad P.O, Malappuram
2. **Manjeri** Mini Civil Station, Manjeri P.O., Malappuram
3. **Perinthalmanna**, Mini Civil Station, Perinthalmanna, Malappuram
4. **Nilambur**, Near Milk Chilling Plant, Nilambur P.O., Malappuram
5. **Kondotty**, Building No.253 B, Mundapalam, Malappuram
6. **Wandoor**, Wandoor P.O, Malappuram - 679 328
7. **Mankada**, Ramapuram P.O, Malappuram - 679 324
8. **Ponnani**, Block Panchayat Compound, Edappal P.O., Malappuram
9. **Parappanangadi**, Puthirikkal, Parappanangadi Central KVCS, Malappuram
10. **Thiroom**, Block Panchayath, Thekummuri P.O, Thirur
11. **Thanoor**, Building No. TP.12/37 (H), Thanoor P.O, Malappuram
12. **Perumpadappu**, Alangode, Perumpadappu P.O, Malappuram - 679 585
13. **Kuttippuram**, Near Police Station, Kuttippuram P.O, Malappuram

#### 11. KOZHIKODE DISTRICT

1. **Kozhikode**, V th Floor, 'C' Block, Civil Station, Kozhikode - 673 020
2. **Panthalayani**, East Road, Quilandy P.O, Kozhikode
3. **Puduppady**, Kathapoil P.O, Kozhikode - 673 603
4. **Badagara**, Kozhikode
5. **Balusseri**, Balusseri Block Panchayat Office, Balusseri P.O, Kozhikode - 673 612
6. **Payyoli**, Payyoli P.O, Kozhikode
7. **Tuneri**, Building No IX-442, Thuneri P.O, Nadapuram, Kozhikode
8. **Perambra**, Chakkittupara P.O, Kozhikode
9. **Kallode**, Perambra P.O., Kozhikode-25
10. **Kunnamangalam**, Thiruvampady, Mulkam P.O., Kozhikode-673 602
11. **Kunnumel** II/1590, Kuttiyadi Panchayat, Kuttiyadi P.O., Kozhikode.
12. **Thodannur**, 592/III/V.P, Valippilly P.O., Kozhikode-673 542.

#### 12. WAYANAD DISTRICT

1. **Kalpetta**, Kalpetta Block Panchayat Office, Kalpetta P.O., Wayanad-673 121
2. **Mananthavady**, Mananthavady P.O., Wayanad.
3. **Sulthanbathery**, Chunkom Busstand Shopping Complex Bldg., Sulthanbathery P.O., Wayanad.

### 13. KANNUR DISTRICT

1. **Kannur**, Civil Station, F Block, Ground Floor, Kannur-2
2. **Payyannur**, Payannur P.O., Kannur
3. **Thalassery**, Civil Station, Thalassery, Kannur
4. **Irikkur**, c/o Block Office, Irikkur P.O., Kannur
5. **Edakkad**, Kizhakkekara, Thazhay Chowa P.O., Kannur
6. **Thalipparambu**, Block Panchayath Office, Karimpam P.O., Kannur
7. **Peravoor**, Peravoor Block Office, Peravoor P.O., Kannur Dist.
8. **Koothuparambu**, Block Office, Koothuparambu, Kannur-670643
9. **Iritty**, Iritty Block Office, Iritty P.O., Kannur

### 14. KASARAGOD DISTRICT

1. **Nileshwaram**, Block Office Bldg., Puthariyadukkam, P.O., Kasaragod
2. **Kanhangad**, Block Office Bldg., Kanhangad P.O., Kasaragod-671 315
3. **Kasaragod**, Vidyanagar P.O., Kasaragod.
4. **Manjeswaram**, Block Office Bldg., Manjeswaram P.O., Kasaragod.

### PRINT AND ELECTRONIC MEDIA

AIR		0471-2335056
Asianet News	Visual	0471-2338982
ACV		0471-3256317
Amritha		0471-2321500
Doordarshan		0471-2730143
India Vision		0471-2325100
Jeevan TV		0471-2318219
Kairali TV		0471-2386590
Manorama News		0471-2328198
Surya TV		0471-2313177
Chandrika		0471-2336955
Deepika	Print	0471-3012222
Desabhimani		0471-2331015
Janayugam		0471-4014222
Janmabhoomi		0471-2470382
Kerala Kaumudi		0471-2461010
Madhyamam		0471-2460792
Malayala Manorama		0471-2328198
Mangalam		0471-2328417
Mathrubhoomi	0471-2461071	
The New Indian Express	0471-2728530	
The Hindu	0471-2502001	

**DISTRICT INFORMATION OFFICERS  
INFORMATION AND PUBLIC RELATIONS DEPARTMENT**

<i>Name</i>	<i>District</i>	<i>Phone (Off)</i>	<i>Mobile</i>
T.A. Shine	Thiruvananthapuram	0471 2731300	9447378816
N.P. Santhosh	Kollam	0474 2794911	9496003214
Chandrasahasn Vadutala	Pathanamthitta	0468 2222657	9496003213
P.S. Rajasekharan Nair	Idukki	0486 2233036	9496003211
N. Sunil Kumar	Alappuzha	0477 2251349	9447073329
K. Abdul Rasheed	Kottayam	0481 2562558	9496003209
P. Vinod	Ernakulam	0484 2354208	9495502745
M.S. Alikunju	Thrissur	0487 2360644	9496003207
T.C. Joseph	Palakkad	0491 2503329	9495106760
V.P.Sulabhakumari	Malappuram	0483 2734387	9496003205
K.P. Abdul Khadar	Kozhikode	0495 2370225	9496003203
E. Sajeev	Wayanad	04936 202529	9496003246
E.V.Sugathan	Kannur	0497 2700231	9446307231
K. Abdu Rahman	Kasaragod	04994 255145	9895659008
C. Unnikrishnan	New Delhi	011-23343424	9868114711

**OPERATIONAL HOLDINGS**

<i>Sl. No.</i>	<i>Class and size of holdings</i>	<i>Kerala</i>			<i>India</i>	
		<i>As per 1995-96 Agri. Census</i>			<i>As per 1995-96 Agri Census</i>	
		<i>No.of operational holdings (lakhs)</i>	<i>Average size of holdings (Area in ha.)</i>	<i>Area (Lakhs ha.)</i>	<i>No.of Operational holdings (lakhs)</i>	<i>Average size of holdings (Area in ha.)</i>
1.	Marginal (< 1 ha)	59.18	0.15	9.12 (53.24)	711.79	0.40
2.	Small ( 1 - 2 ha)	2.62	1.34	3.50 (20.46)	216.43	1.42
3.	Semi medium ( 2 - 4 ha)	0.96	2.54	2.44 (14.20)	142.61	2.73
4.	Medium ( 4 - 10 ha)	0.20	5.20	1.04 (6.08)	70.92	5.84
5.	Large (>10 ha)	0.03	34.74	1.02 (6.02)	14.04	17.21
<b>Total</b>		<b>62.99</b>	<b>0.27</b>	<b>17.12 (100.00)</b>	<b>1.41</b>	

*Source:* India's Agricultural Sector, CMIE February 2004.  
(Figures in brackets are percentage to total)

## KERALA AT A GLANCE

Location : `North Latitude Between 8° - 18' and 12° - 48'  
East Longitude Between 74° - 52' and 77° - 22'

Area	-	38,863 Sq.Km.
Percentage of Area to the area of Indian Union	-	1.18
Length of Coastal Line	-	580 KM
Highest Peak	-	Anamudi (2694 metres)
West flowing rivers	-	41 Nos
East flowing rivers	-	3 Nos
Districts	-	14 Nos
Taluks	-	63 Nos
Revenue Village	-	1452 Nos
Panchayat	-	978 Nos
Corporations	-	5 Nos
Municipalities	-	60 Nos
M.L.A.s Elected	-	140 Nos
Nominated	-	1 No
M.P.s Lok Sabha	-	20 Nos
Rajya Sabha	-	9 Nos
Community Development Blocks	-	152 Nos

### Population 2011 Census

Total population (lakhs)	-	333.88
Male population (lakhs)	-	160.21
Female population (lakhs)	-	173.66
Rural population (lakhs)	-	174.56
Urban population (lakhs)	-	159.32
Increase of population (%)	-	4.86
Density per sq.km.	-	859
Sex ratio (Females per 1000 males)	-	1084
Literacy(%)	-	93.91
Male Literacy(%)	-	96.02
Female Literacy (%)	-	91.98

### Production of Milk, Egg and Meat (2010-11)

Production of Milk (Thousand tonnes)	-	2537
Production of Egg (Lakhs)	-	16330
Production of Meat (Metric Tonnes)	-	102026

**Livestock Population (2007 Livestock Census)**

Cattle	-	1740117
Buffaloes	-	58145
Goat	-	1729127
Pig	-	59017
Sheep	-	965
Fowls	-	11820376
Duck	-	865331
Other Poultry	-	407841
Rabbits	-	151552

**Land Use (2009-2010) Area in hectares**

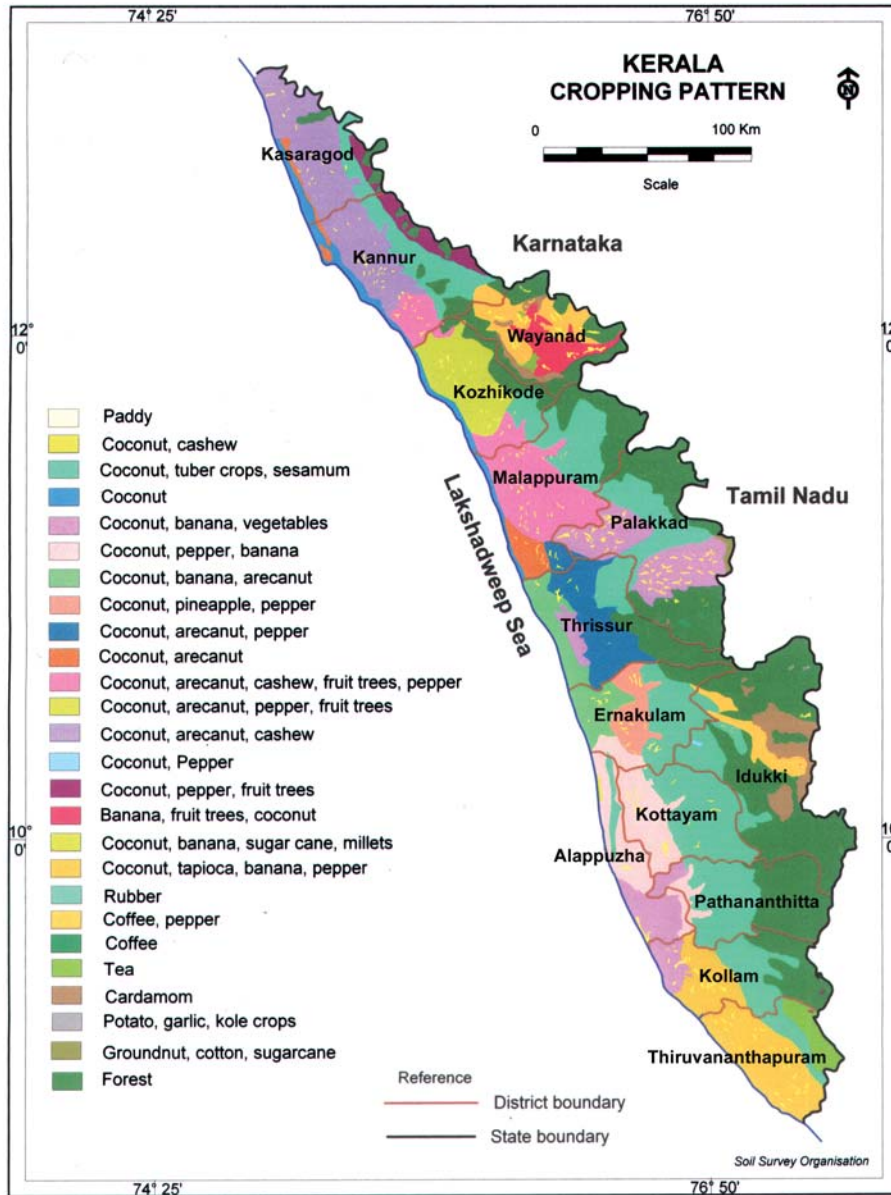
Total Geographical Area	-	3886287
Forests	-	1081509
Land put to non-Agri use	-	371906
Barren and uncultivable land	-	22046
Permanent pastures and other grazing land	-	228
Land under miscellaneous tree crops	-	4423
Cultivable Waste	-	98014
Fallow other than current fallow	-	45374
Current fallow	-	76945
Net area sown	-	2078715
Area sown more than once	-	589963
Total cropped area	-	2668678

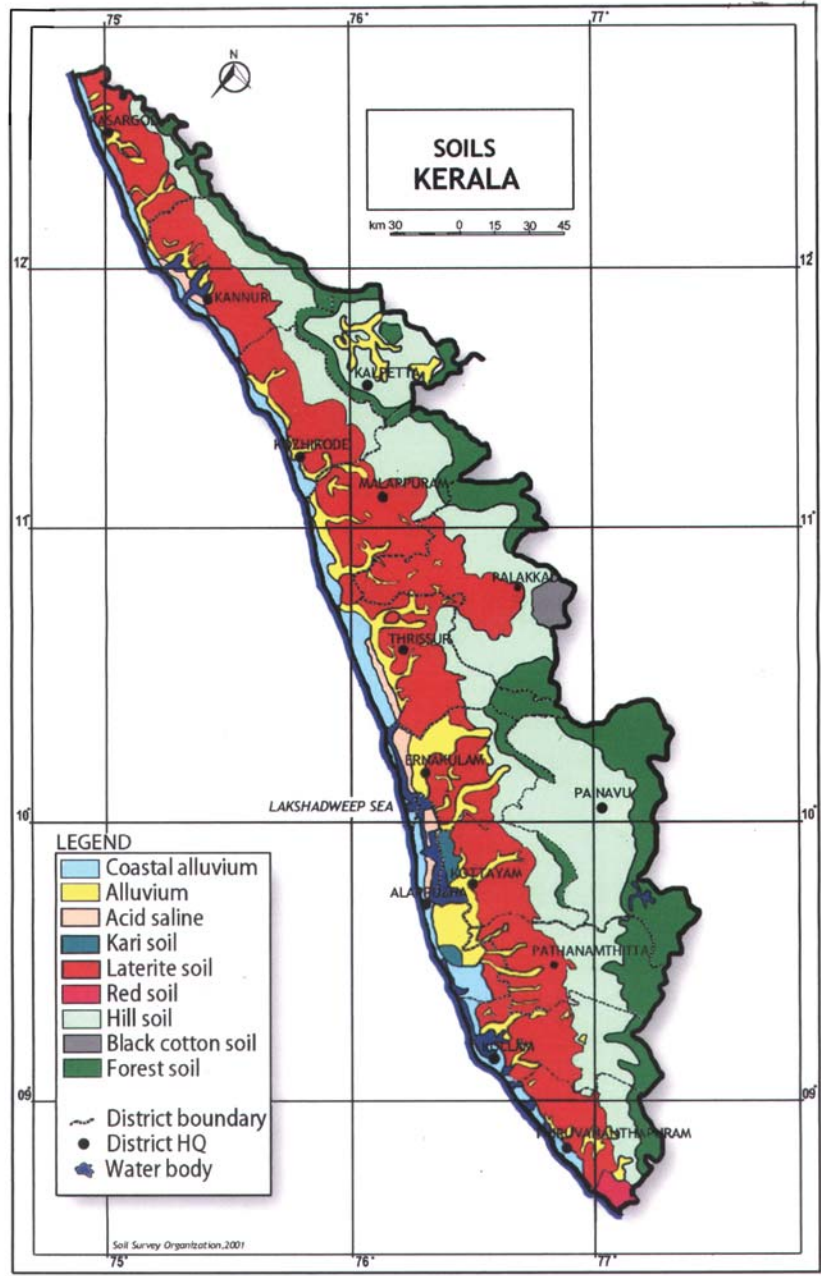
Source : Department of Economics & Statistics

**Major Crops (2009-10)**

	<b>Area (ha)</b>	<b>Production (tonnes)</b>
Rice	- 234013	598339
Tapioca	- 74925	2525384
Banana & Other Plantain	- 99077	744788
Coconut	- 778618	5667 (Million nuts)
Arecanut	- 99188	116763
Pepper	- 171489	42459
Rubber	- 525408	745510
Ginger	- 5408	28603 (dry)
Cardamom	- 41593	7800 (processed)
Tea	- 36845	57810
Coffee	- 84796	59250

Source : Department of Economics & Statistics







**SELECTED INDICATORS IN AGRICULTURAL SECTOR  
KERALA AND INDIA**

Sl.No.	Item	Unit	Kerala	India
(1)	(2)	(3)	(4)	(5)
1.	Geographical Area	'000 Sq.Km.	38.86	3166
2.	Population (2011 Census)	Lakhs.	333	12102
3.	Density of Population/Sq. km.(2011)	No.	859	382
4.	Sex Ratio - Female/1000 Male(2011)	"	1084	940
5.	Growth rate of population (2001 - 2011)	%	4.86	17.64
6.	Literacy Rate (2011)	%	93.91	74.04
7.	Per capita income at current prices (2005-06)	Rs.	30668	17978 (2001-02)
8.	Percentage share of State Income from Agriculture (2006-07) %		14.55	
9.	Gross cropped area (2009-10)	Lakh ha.	26.69	1958 (2007-08)
10.	Net area sown (2009-10)	"	20.79	1408 (2007-08)
11.	Net area sown as percentage to Geographical area (2009-10)%		53.50	44.47 (2007-08)
12.	Area under rice (2009-10)	Lakh ha.	2.34	418.5 (2009-10)*
13.	Annual growth rate in area of foodgrain (2001-02)	%	-5.85	10.6
14.	Per capita food grain availability (2009)	kg./annum		162.1
15.	Food grain production (2009-10)	Million Tonnes		218.20*
16.	Production of rice (2009-10)	Lakh tonnes	5.98	891.3 *
17.	Productivity of rice (2009-10)	kg/ha.	2556	2130 *
18.	Net area irrigated (2008-09)	Lakh.ha	3.99	622.9 (2007-08)
19.	Fertilizer consumption (2009-10)	'000 tonnes	260.91	24909.3
20.	Number of cattle (2007 census)	Lakh No.	17.40	
21.	Production of Milk (2009-10)	Lakh tonnes.	25.37	1084 ((2008-09)
22.	Production of eggs (2009-10)	Lakh Nos.	16330	556378 (2008-09)
23.	Production of Meat (2009-10)	'000 tonnes	102.027	3822 (2008-09)
24.	Production of fish (2006-07)	Lakh tonnes	6.40	71.26 (2007-08)

\*Fourth advance estimates as released on 19-07-2010 , Source Directorate of Economics & Statistics, Dept. of Agriculture & Co-operation

**TABLE - 1**

**CLASSIFICATION OF AREA ON THE BASIS OF LAND UTILISATION**

Sl. No	District	Total Geographical area	Forest	Land put to non agricultural use	Barren & uncultivable land	Permanent pastures & other grazing land	Land under misc. tree crops	Cultivable waste	Fallow other than current fallow	Current fallow	Marshy Land	Still Water	Water Logged Area	Social Forestry	Net area sown	Area sown more than once	Total cropped Area
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Thiruvananthapuram	218781	49861	26651	224	0	30	418	336	2904	8	4340	91	56	133862	20526	154388
2	Kollam	248788	81438	24860	201	0	79	1364	1164	4714	17	7860	635	84	126372	35126	161498
3	Pathanamthitta	265277	155214	16371	220	0	132	2411	1885	4432	0	2698	165	106	81643	21896	103539
4	Alappuzha	141011	0	21755	176	0	175	14264	4064	2344	33	12144	326	33	85697	19461	105158
5	Kottayam	220442	8141	24591	1512	0	128	4711	3173	5418	6	6362	159	87	166154	39697	205851
6	Idukki	436328	198413	10712	2116	171	216	2699	989	1041	0	10480	1	1350	208140	98541	306681
7	Eranakulam	305826	70617	37050	1193	7	133	9938	7150	10876	28	9664	290	117	158763	16789	175552
8	Thrissur	302919	103619	33862	292	29	341	6855	5437	12629	4	8080	278	169	131324	38733	170057
9	Palakkad	447584	136257	43157	3451	0	1546	27720	10064	11050	0	14979	0	364	198996	115375	314371
10	Malappuram	355446	103417	41377	1529	17	379	4760	5051	10609	0	6082	64	175	181986	60011	241997
11	Kozhikode	234641	41386	26512	1063	0	159	2402	820	1805	18	4650	120	29	155677	44688	200365
12	Wayanad	212966	78787	9381	206	2	79	1209	370	1647	1	4055	14	33	117182	60182	177364
13	Kannur	297112	48734	28307	1948	0	272	6475	2662	4462	96	6149	391	73	197543	16149	213692
14	Kasaragod	199166	5625	27320	7915	2	754	12788	2209	3014	0	4004	18	141	135376	2789	138165
	<b>State</b>	<b>3886287</b>	<b>1081509</b>	<b>371906</b>	<b>22046</b>	<b>228</b>	<b>4423</b>	<b>98014</b>	<b>45374</b>	<b>76945</b>	<b>211</b>	<b>101547</b>	<b>2552</b>	<b>2817</b>	<b>2078715</b>	<b>589963</b>	<b>2668678</b>

The estimates are based on survey conducted in the Revenue land (as per Village Records). Therefore the area under cultivation in forest land is not included

TABLE-2

## DISTRICTWISE AREA UNDER CROPS 2009-10

(Area in ha)

Sl. No.	District	Paddy				Jower	Ragi	Other Cereals	Total Cereals/ Millets	Pulses including Tur				Total Food Grains
		Autumn	Winter	Summer	Total					Autumn	Winter	Summer	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Thiruvananthapuram	1417	1360	163	2940	0	0	0	2940	3	1	61	65	3005
2	Kollam	878	2471	104	3453	0	0	0	3453	3	4	198	205	3658
3	Pathanamthitta	185	603	2208	2996	0	0	0	2996	0	0	0	0	2996
4	Alappuzha	9128	7492	16820	33440	0	0	0	33440	0	0	113	113	33553
5	Kottayam	3940	3138	8396	15474	0	0	0	15474	0	2	186	188	15662
6	Idukki	588	1531	209	2328	10	0	12	2350	2	19	120	141	2491
7	Ernakulam	4090	5121	1576	10787	0	0		10787	0	2	160	162	10949
8	Thrissur	3901	12549	8989	25439	0	0		25439	0	0	1	1	25440
9	Palakkad	45200	49056	6266	100522	2516	292	214	103544	78	2874	34	2986	106530
10	Malappuram	1187	6356	1295	8838	0	0		8838	0	2	64	66	8904
11	Kozhikode	173	2494	610	3277	0	0		3277	0	0	20	20	3297
12	Wayanad	0	10576	2419	12995	16	0		13011	0	1	222	223	13234
13	Kannur	4098	2924	108	7130	0	0		7130	0	53	168	221	7351
14	Kasaragod	2464	1814	116	4394	5	1		4400	0	19	39	58	4458
		<b>77249</b>	<b>107485</b>	<b>49279</b>	<b>234013</b>	<b>2547</b>	<b>293</b>	<b>226</b>	<b>237079</b>	<b>86</b>	<b>2977</b>	<b>1386</b>	<b>4449</b>	<b>241528</b>

TABLE-2 (contd..)

## DISTRICTWISE AREA UNDER CROPS 2009-10

(Area in ha)

Sl. No.	District	Sugar Crops			Spices and Condiments												Grand Total
		Sugar Cane	Palmyrah	Total	Pepper	Ginger	Turmeric	Cardamom *	Arecanut	Tamarind	Vanilla	Cloves	Nutmeg	Cinnamon	Garlic	Total	
1	2	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	Thiruvananthapuram	0	52	52	4902	61	46		890	817	4	28	74	2	0	6824	6876
2	Kollam	2	26	28	8138	390	240		2122	600	7	35	70	4	0	11606	11634
3	Pathanamthitta	9	39	48	3598	305	77	664	1104	196	29	22	463	10	0	6468	6516
4	Alappuzha	66	18	84	1387	61	12		1711	387	3	16	210	31	0	3818	3902
5	Kottayam	31	364	395	6711	88	77	200	1731	370	127	192	1440	23	0	10959	11354
6	Idukki	2201	210	2411	85739	691	245	33083	2753	444	429	711	2054	36	336	126521	128932
7	Ernakulam	5	235	240	5273	199	279		4674	677	54	15	6060	43	0	17303	17543
8	Thrissur	1	148	149	4898	80	111		7163	1544	14	15	4166	17	0	18008	18157
9	Palakkad	647	2319	2966	5758	812	487	2754	10202	4389	37	21	239	16	0	24715	27681
10	Malappuram	0	381	381	6147	62	240	70	19994	1515	29	10	364	27	0	28458	28839
11	Kozhikode	1	180	181	7972	104	295	220	10054	720	42	57	415	51	0	19930	20111
12	Wayanad	7	96	103	16571	2446	189	4106	10862	132	120	24	49	20	0	34519	34622
13	Kannur	1	105	106	9631	87	118	128	10674	724	83	32	252	37	0	21766	21872
14	Kasaragod	1	46	47	4764	22	22	368	15256	193	31	28	75	4	0	20763	20810
	<b>State</b>	<b>2972</b>	<b>4219</b>	<b>7191</b>	<b>171489</b>	<b>5408</b>	<b>2438</b>	<b>41593</b>	<b>99188</b>	<b>12708</b>	<b>1009</b>	<b>1206</b>	<b>15931</b>	<b>321</b>	<b>336</b>	<b>351658</b>	<b>358849</b>

TABLE-2 (contd..)

## DISTRICTWISE AREA UNDER CROPS 2009-10

(Area in ha)

Sl. No.	District	Fresh Fruits								Dry Fruit	
		Jack	Mango	Banana	Plantain	Pineapple	Papaya	Other Fresh Fruits	Total	Cashew	Total Fruits
1	2	32	33	34	35	36	37	38	39	40	41
1	Thiruvananthapuram	4984	3069	2349	4979	195	1101	393	17070	1001	18071
2	Kollam	6034	4718	2068	4055	176	1554	580	19185	2858	22043
3	Pathanamthitta	2431	1420	2032	1490	150	703	826	9052	658	9710
4	Alappuzha	2165	3622	538	1868	86	1196	620	10095	2110	12205
5	Kottayam	3319	2153	2839	2631	1286	1298	676	14202	404	14606
6	Idukki	10772	4547	2541	3488	1076	821	587	23832	1237	25069
7	Ernakulam	3771	3723	6500	3788	6020	1309	780	25891	581	26472
8	Thrissur	5035	6191	2464	4258	56	899	1171	20074	2290	22364
9	Palakkad	5589	7701	10593	10384	123	806	1185	36381	3002	39383
10	Malappuram	7824	6595	6516	2266	160	2065	988	26414	4475	30889
11	Kozhikode	9169	7430	1476	2990	192	2154	642	24053	2068	26121
12	Wayanad	7481	3818	8318	1311	35	351	760	22074	706	22780
13	Kannur	7819	6884	2566	2592	220	1969	1091	23141	19377	42518
14	Kasaragod	1755	1880	475	1702	52	614	535	7013	8205	15218
	<b>State</b>	<b>78148</b>	<b>63751</b>	<b>51275</b>	<b>47802</b>	<b>9827</b>	<b>16840</b>	<b>10834</b>	<b>278477</b>	<b>48972</b>	<b>327449</b>

TABLE-2 (contd..)

## DISTRICTWISE AREA UNDER CROPS 2009-10

(Area in ha)

Sl. No.	District	Tapioca				Tubers					
		Autumn	Winter	Summer	Total	Elephant Foot Yam	Colocasia	Yam (Kachil)	Sweet Potato	Other Tubers	Total
1	2	42	43	44	45	46	47	48	49	50	51
1	Thiruvananthapuram	4424	4330	7378	16132	405	502	100	19	145	1171
2	Kollam	3212	6264	7457	16933	1261	1826	655	12	244	3998
3	Pathanamthitta	942	1964	3534	6440	1219	1125	475	1	82	2902
4	Alappuzha	354	1111	1222	2687	279	545	144	4	46	1018
5	Kottayam	721	2303	2844	5868	532	526	112	2	17	1189
6	Idukki	1050	2469	2513	6032	875	726	259	4	28	1892
7	Ernakulam	1310	1383	2572	5265	271	346	36	7	79	739
8	Thrissur	214	310	400	924	121	293	9	6	412	841
9	Palakkad	670	1204	969	2843	370	621	31	137	914	2073
10	Malappuram	2184	1428	2196	5808	565	774	60	106	114	1619
11	Kozhikode	295	716	812	1823	191	521	29	17	119	877
12	Wayanad	225	491	982	1698	1553	411	61	9	9	2043
13	Kannur	456	705	922	2083	179	474	40	28	47	768
14	Kasaragod	12	248	129	389	76	114	4	47	3	244
	<b>State</b>	<b>16069</b>	<b>24926</b>	<b>33861</b>	<b>74925</b>	<b>7897</b>	<b>8804</b>	<b>2015</b>	<b>399</b>	<b>2259</b>	<b>21374</b>

TABLE-3 (contd..)

**DISTRICTWISE AREA UNDER CROPS 2009-10**

(Area in Ha)

Sl. No.	District	Vegetables													Total Food Crops
		Drumstick	Amaranthus	Bitter Gourd	Snake Gourd	Ladies Finger	Brinjal	Green Chillies	Little Gourd (Koval)	Ash Gourd (Kumbalam)	Pumpkin	Cucumber	Other Vegetables	Total	
1	2	52	53	54	55	56	57	58	59	60	61	62	63	64	65
1	Thiruvananthapuram	1713	170	71	111	56	53	108	36	4	16	111	224	2673	47928
2	Kollam	1930	155	118	47	48	78	206	104	43	56	22	271	3078	61344
3	Pathanamthitta	563	80	77	74	44	74	41	90	52	45	38	349	1527	30022
4	Alappuzha	633	177	140	107	54	110	113	106	37	47	78	407	2009	55374
5	Kottayam	656	42	209	206	40	81	98	224	39	35	38	516	2184	50863
6	Idukki	504	49	452	8	24	48	55	43	24	58	16	4792	6073	170489
7	Emakulam	619	97	118	117	48	44	29	80	71	68	211	1277	2779	63747
8	Thrissur	1352	58	251	39	77	42	154	44	53	47	36	544	2697	70423
9	Palakkad	1944	148	453	217	488	173	330	95	193	234	103	3276	7654	186164
10	Malappuram	2593	82	123	90	102	52	63	27	184	245	377	933	4871	80930
11	Kozhikode	1749	144	60	22	23	10	110	15	51	54	83	166	2487	54716
12	Wayanad	380	56	212	4	8	24	49	14	75	171	32	479	1504	75881
13	Kannur	1697	124	91	15	47	44	91	58	67	37	191	252	2714	77306
14	Kasaragode	584	61	25	8	40	21	54	88	18	14	94	155	1162	42281
	<b>State</b>	<b>16917</b>	<b>1443</b>	<b>2400</b>	<b>1065</b>	<b>1099</b>	<b>854</b>	<b>1501</b>	<b>1024</b>	<b>911</b>	<b>1127</b>	<b>1430</b>	<b>13641</b>	<b>43412</b>	<b>1067468</b>

TABLE-2 (contd..)

## DISTRICTWISE AREA UNDER CROPS 2009-10

(Area in ha)

Sl. No.	District	Non Food Crops															Grand Total
		Oil Seeds					Fiber Drugs and Narcotics					Plantation Crops					
		Groundnut	Sesamum	Coconut	Others	Total	Cotton	Better Leaves	Tobacco	Lemon Grass	Total	Tea*	Coffee**	Rubber #	Cocoa	Total	
1	2	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
1	Thiruvananthapuram	1	0	71376	33	71410	0	19	0	1	20	966		30449	75	31490	102920
2	Kollam	0	133	56675	54	56862	0	43	0	0	43	1258		36111	10	37379	94284
3	Pathanamthitta	0	0	16213	87	16300	0	38	0	0	38	91		49957	422	50470	66808
4	Alappuzha	0	238	39816	181	40235	0	42	0	3	45			4329	82	4411	44691
5	Kottayam	0	0	28185	83	28268	0	10	0	4	14	1963		112918	984	115865	144147
6	Idukki	0	5	17189	16	17210	0	0	0	383	383	24665	12780	39679	7357	84481	102074
7	Ernakulam	0	15	44475	82	44572	0	10	0	3	13	3		58729	1365	60097	104682
8	Thrissur	0	33	77509	153	77695	0	6	0	1	7	530		15017	49	15596	93298
9	Palakkad	1339	63	57186	485	59073	1018	10	0	66	1094	852	4650	35559	127	41188	101355
10	Malappuram	0	116	108380	97	108593	0	236	0	3	239	174		38136	217	38527	147359
11	Kozhikode	0	0	119166	60	119226	0	10	0	18	28			20358	680	21038	140292
12	Wayanad	0	5	10200	42	10247	0	2	0	114	116	6343	67366	9723	184	83616	93979
13	Kannur	0	0	78024	82	78106	0	9	0	16	25			43819	415	44234	122365
14	Kasaragod	0	0	54224	42	54266	0	12	29	1	69			30624	146	30770	85078
	<b>State</b>	<b>1340</b>	<b>608</b>	<b>778618</b>	<b>1497</b>	<b>782063</b>	<b>1018</b>	<b>447</b>	<b>29</b>	<b>613</b>	<b>2134</b>	<b>36845</b>	<b>84796</b>	<b>525408</b>	<b>12113</b>	<b>659162</b>	<b>1443332</b>

Source: Department of Economics &amp; Statistics, Kerala



TABLE-2 (contd..)

## DISTRICTWISE AREA UNDER CROPS 2009-10

(Area in ha)

Sl. No.	District	Non Food Crops						Total Non Food Crops	Total Cropped Area
		Fodder Grass	Green Manure Crops	Other Crops & Trees	Medicinal Plants	Total			
1	2	82	83	84	85	86	87	88	
1	Thiruvananthapuram	98	462	2958	22	3540	106460	154388	
2	Kollam	218	1087	4509	56	5870	100154	161498	
3	Pathanamthitta	207	1015	5340	147	6709	73517	103539	
4	Alappuzha	118	488	4408	79	5093	49784	105158	
5	Kottayam	274	526	9960	81	10841	154988	205851	
6	Idukki	1182	1279	31632	25	34118	136192	306681	
7	Ernakulam	232	585	6215	91	7123	111805	175552	
8	Thrissur	67	1465	4653	151	6336	99634	170057	
9	Palakkad	1258	3657	21138	799	26852	128207	314371	
10	Malappuram	56	4747	8862	43	13708	161067	241997	
11	Kozhikode	123	1742	3409	83	5357	145649	200365	
12	Wayanad	564	862	6058	20	7504	101483	177364	
13	Kannur	326	1557	12117	21	14021	136386	213692	
14	Kasaragod	107	4373	6321	5	10806	95884	138165	
	<b>State</b>	<b>4830</b>	<b>23845</b>	<b>127580</b>	<b>1623</b>	<b>157878</b>	<b>1601210</b>	<b>2668678</b>	

**TABLE-3**

**DISTRICTWISE PRODUCTION OF IMPORTANT CROPS 2009-10**

**(Production in tonnes)**

Sl. No.	District	Rice				Jower	Ragi	Other Cereals	Sugarcane (Canegur)	Black Pepper	Green Chillies	Pulses including Tur
		Autumn	Winter	Summer	Total							
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Thiruvananthapuram	3942	3282	340	7564				0	1031	99	47
2	Kollam	2060	5693	194	7947				0	1501	188	149
3	Pathanamthitta	466	1490	5782	7738				72	850	41	
4	Alappuzha	28912	22672	46392	97976				579	134	52	99
5	Kottayam	11484	7634	20295	39413				147	967	121	163
6	Idukki	1510	4106	521	6137	10		9	22203	25472	54	115
7	Ernakulam	7803	10622	2599	21024				0	798	80	115
8	Thrissur	6922	28603	28329	63854				0	895	210	1
9	Palakkad	112866	136538	16827	266231	1283	236	167	5475	1121	74	2244
10	Malappuram	2343	13269	4281	19893				0	581	95	49
11	Kozhikode	221	2850	1231	4302				0	1010	74	15
12	Wayanad	0	26338	6819	33157	9			0	4497	72	169
13	Kannur	7843	5843	157	13843				15	2505	91	179
14	Kasaragod	5678	3344	238	9260	3			6	1098	51	45
	<b>State Total</b>	<b>192050</b>	<b>272284</b>	<b>134005</b>	<b>598339</b>	<b>1305</b>	<b>236</b>	<b>176</b>	<b>28497</b>	<b>42459</b>	<b>1302</b>	<b>3390</b>

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**TABLE-3 (Contd...)**

Sl. No.	District	Cured Ginger	Cured Turmeric	Groundnut	Arecanut	Tamarind	Mango	Jack (Nos. in million nuts)	Banana	Other Plantain
1	2	14	15	16	17	18	19	20	21	22
1	Thiruvananthapuram	152	84	1	460	2492	19918	24	17250	44905
2	Kollam	898	341		1587	1228	29724	22	13624	26735
3	Pathanamthitta	860	125		615	374	11147	10	16860	14491
4	Alappuzha	168	21		1008	739	17639	8	4322	11827
5	Kottayam	268	178		1333	707	12057	15	25696	22167
6	Idukki	2316	555		3148	769	30555	37	19506	25451
7	Ernakulam	588	900		5130	730	18233	17	58787	25074
8	Thrissur	164	177		7095	1442	31079	20	19455	23277
9	Palakkad	3779	1430	991	11554	5415	73313	25	80068	95528
10	Malappuram	141	469		25542	1964	32117	22	45590	11240
11	Kozhikode	401	721		12710	1606	22215	23	11102	11167
12	Wayanad	18439	672		5385	258	12524	23	71627	7487
13	Kannur	352	349		13516	1382	50803	29	18640	10043
14	Kasaragod	77	44		27680	521	11844	6	3715	9154
	<b>State Total</b>	<b>28603</b>	<b>6066</b>	<b>992</b>	<b>116763</b>	<b>19627</b>	<b>373168</b>	<b>281</b>	<b>406242</b>	<b>338546</b>

**TABLE-3 (Contd...)**

Sl. No.	District	Pineapple	Tapioca	Sweet Potato	Papaya	Drumstick	Sesamum	Coconut (million nuts)	Cotton (No. of bales of 170 kg. Each)	Nutmeg	Tobacco
1	2	23	24	25	26	27	28	29	30	31	32
1	Thiruvananthapuram	1313	424015	216	12875	2292	0	591		40	
2	Kollam	1187	503095	132	7572	1725	86	412		22	
3	Pathanamthitta	1014	293652	11	6280	371	0	114		226	
4	Alappuzha	476	73478	48	8856	383	50	257		88	
5	Kottayam	7064	226941	16	7743	453	0	141		915	
6	Idukki	8224	213318	46	5303	543	2	90		1295	
7	Ernakulam	57464	228343	81	7427	664	2	235		4873	
8	Thrissur	362	28236	66	3762	1608	11	538		3092	
9	Palakkad	548	90428	1264	4791	3989	7	417	1324	118	
10	Malappuram	687	225500	1219	11834	1244	48	1063		249	
11	Kozhikode	957	51171	194	7016	519	0	868		121	
12	Wayanad	118	80618	106	3240	136	0	46		11	
13	Kannur	1107	77740	318	17917	1366	0	479		183	
14	Kasaragod	256	8849	858	4391	562	0	416		36	34
	<b>State Total</b>	<b>80777</b>	<b>2525384</b>	<b>4575</b>	<b>109007</b>	<b>15855</b>	<b>206</b>	<b>5667</b>	<b>1324</b>	<b>11269</b>	<b>34</b>

**TABLE-3 (Contd...)**

Sl. No.	District	Tea*	Coffee**	Rubber##	Cocoa	Processed cardamom#	Raw cashew nuts	Betel leaves	Clove (dry)	Garlic
1	2	33	34	35	36	37	38	39	40	41
1	Thiruvananthapuram			42900	25		403	879	2	
2	Kollam	95		50830	2		1271	1745	2	
3	Pathanamthitta			77400	240	11	254	653	2	
4	Alappuzha			6580	49		814	1908	1	
5	Kottayam	45		170800	603	13	127	344	15	
6	Idukki	45162	7425	54600	3626	7077	497	0	45	5712
7	Ernakulam			90770	732		218	365	1	
8	Thrissur	1657		21800	11		933	232	2	
9	Palakkad	1485	1875	47930	104	330	1047	148	3	
10	Malappuram			48080	147	0	2272	13951	1	
11	Kozhikode			28275	369	3	704	580	3	
12	Wayanad	9366	49950	8400	67	366	494	116	3	
13	Kannur			58125	201	0	21595	476	2	
14	Kasaragode			39020	22	0	5189	436	2	
	<b>State Total</b>	<b>57810</b>	<b>59250</b>	<b>745510</b>	<b>6198</b>	<b>7800</b>	<b>35818</b>	<b>21833</b>	<b>84</b>	<b>5712</b>

Source:

\* Tea Board

# Spices Board

\*\* Coffee Board

## Rubber Board

**Table 4**

**ESTIMATED AREA AND PRODUCTION OF RICE (AUTUMN)-2009-10**

(Area in hectares & Production in tonnes)

Sl. No.	District	High Yielding						Local						TOTAL	
		Irrigated		Unirrigated		TOTAL		Irrigated		Unirrigated		TOTAL			
		Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Thiruvananthapuram	1325.12	3723.486	92.36	218.314	1417.48	3941.800					0	0	1417.48	3941.800
2	Kollam	198.51	472.883	673.43	1573.888	871.94	2046.771			5.66	13.04	5.66	13.04	877.60	2059.811
3	Pathanamthitta	97.26	226.435	49.87	127.77	147.13	354.205			38.25	111.955	38.25	111.955	185.38	466.160
4	Alappuzha	8221.29	27353.635	637.89	1239.019	8859.18	28592.654			269.31	319.041	269.31	319.041	9128.49	28911.695
5	Kottayam	3929.48	11459.841	9.15	23.248	3938.63	11483.089	0.68	0.422			0.68	0.422	3939.31	11483.511
6	Idukki	542.33	1398.81	46.34	110.821	588.67	1509.631					0	0	588.67	1509.631
7	Ernakulam	2789.92	5482.787	919.05	1913.588	3708.97	7396.375	0.71	0.773	380.02	406.102	380.73	406.875	4089.70	7803.250
8	Thrissur			3822.56	6806.941	3822.56	6806.941	69.	102.09	9.56	13.099	78.56	115.189	3901.12	6922.130
9	Palakkad	4821.8	13324.721	39117.12	97781.476	43938.92	111106.197	22.35	34.037	1238.6	1725.612	1260.95	1759.649	45199.87	112865.846
10	Malappuram			1140.44	2278.747	1140.44	2278.747	2.2	2.621	43.96	61.323	46.16	63.944	1186.60	2342.691
11	Kozhikode			127.57	187.106	127.57	187.106			45.36	33.77	45.36	33.77	172.93	220.876
12	Wayanad					0.	0.000					0	0	0.00	0.000
13	Kannur	6.5	12.252	3244.57	6379.363	3251.07	6391.615			845.93	1451.526	845.93	1451.526	4097.00	7843.141
14	Kasaragod	150.1	290.62	2066.23	4851.364	2216.33	5141.984	0.47	0.737	247.84	535.528	248.31	536.265	2464.64	5678.249
	<b>State</b>	<b>22082.31</b>	<b>63745.47</b>	<b>51946.58</b>	<b>123491.645</b>	<b>74028.89</b>	<b>187237.115</b>	<b>95.41</b>	<b>140.68</b>	<b>3124.49</b>	<b>4670.996</b>	<b>3219.9</b>	<b>4811.676</b>	<b>77248.79</b>	<b>192048.791</b>

Table 5

## ESTIMATED AREA AND PRODUCTION OF RICE ( WINTER)-2009-10

(Area in hectares &amp; Production in tonnes)

Sl. No.	District	High Yielding						Local						TOTAL	
		Irrigated		Unirrigated		TOTAL		Irrigated		Unirrigated		TOTAL			
		Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Thiruvananthapuram	1360.14	3282.46			1360.14	3282.46					0.	0.	1360.14	3282.46
2	Kollam	533.	1286.399	922.24	2250.339	1455.24	3536.738	424.64	964.113	591.33	1192.111	1015.97	2156.224	2471.21	5692.962
3	Pathanamthitta	576.41	1431.21			576.41	1431.21	26.65	58.465	0.11	0.283	26.76	58.748	603.17	1489.958
4	Alappuzha	6891.37	21621.702	389.34	807.049	7280.71	22428.751			212.25	242.83	212.25	242.83	7492.96	22671.581
5	Kottayam	3113.88	7579.228			3113.88	7579.228	16.6	37.19	7.69	17.511	24.29	54.701	3138.17	7633.929
6	Idukki	1158.49	3145.248			1158.49	3145.248	371.6	960.902			371.6	960.902	1530.09	4106.15
7	Ernakulam	5087.4	10564.644	0.67	1.831	5088.07	10566.475	32.83	55.808			32.83	55.808	5120.9	10622.283
8	Thrissur	10148.43	24481.079	1.23	2.172	10149.66	24483.251	2316.66	3992.543	82.92	127.049	2399.58	4119.592	12549.24	28602.843
9	Palakkad	43270.71	124945.545	1362.69	3480.89	44633.40	128426.435	3013.54	5689.465	1408.25	2421.865	4421.79	8111.33	49055.19	136537.765
10	Malappuram	3229.47	7900.185	663.88	1438.384	3893.35	9338.569	1989.07	3288.955	473.4	641.615	2462.47	3930.57	6355.82	13269.139
11	Kozhikode	189.28	397.095	213.93	297.767	403.21	694.862	44.62	60.81	2045.88	2094.554	2090.5	2155.364	2493.71	2850.226
12	Wayanad	7660.88	19959.215	614.33	1683.416	8275.21	21642.631	1469.21	2711.304	832.18	1983.981	2301.39	4695.285	10576.6	26337.916
13	Kannur	2333.27	4992.819			2333.27	4992.819	590.85	850.096			590.85	850.096	2924.12	5842.915
14	Kasaragod	858.47	1714.448			858.47	1714.448	955.87	1629.51			955.87	1629.51	1814.34	3343.958
	<b>State</b>	<b>86411.2</b>	<b>233301.277</b>	<b>4168.31</b>	<b>9961.848</b>	<b>90579.51</b>	<b>243263.125</b>	<b>11252.14</b>	<b>20299.161</b>	<b>5654.01</b>	<b>8721.799</b>	<b>16906.15</b>	<b>29020.96</b>	<b>107485.66</b>	<b>272284.085</b>

Source: Department of Economics &amp; Statistics, Kerala

**Table 6**

**ESTIMATED AREA AND PRODUCTION OF RICE (SUMMER)-2009-10**

(Area in hectares & Production in tonnes)

Sl. No.	District	High Yielding						Local						TOTAL	
		Irrigated		Unirrigated		TOTAL		Irrigated		Unirrigated		TOTAL			
		Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Thiruvananthapuram	162.78	339.586			162.78	339.586					0.	0.	162.78	339.586
2	Kollam	90.9	173.9			90.9	173.9	11.	18.19	1.94	2.069	12.94	20.259	103.84	194.159
3	Pathanamthitta	2208.4	5781.9			2208.4	5781.9					0.	0.	2208.4	5781.9
4	Alappuzha	16819.74	46392.202			16819.74	46392.202					0.	0.	16819.74	46392.202
5	Kottayam	8396.06	20294.706			8396.06	20294.706					0.	0.	8396.06	20294.706
6	Idukki	176.18	442.539			176.18	442.539	33.03	78.134			33.03	78.134	209.21	520.673
7	Ernakulam	1572.48	2593.987			1572.48	2593.987	3.1	5.316			3.1	5.316	1575.58	2599.303
8	Thrissur	8982.81	28323.955	0.59	0.516	8983.4	28324.471	5.27	4.695			5.27	4.695	8988.67	28329.166
9	Palakkad	6263.44	16822.613			6263.44	16822.613	2.47	3.95			2.47	3.95	6265.91	16826.563
10	Malappuram	1252.73	4201.072	2.41	4.851	1255.14	4205.923	39.63	75.323			39.63	75.323	1294.77	4281.246
11	Kozhikode	575.61	1186.319	0.17	0.301	575.78	1186.62	34.37	44.207			34.37	44.207	610.15	1230.827
12	Wayanad	2395.9	6749.66	22.27	67.597	2418.17	6817.257	1.29	2.043			1.29	2.043	2419.46	6819.3
13	Kannur	82.64	140.893			82.64	140.893	25.55	15.721			25.55	15.721	108.19	156.614
14	Kasaragod	91.36	200.957			91.36	200.957	24.92	37.117			24.92	37.117	116.28	238.074
	<b>State</b>	<b>49071.03</b>	<b>133644.289</b>	<b>25.44</b>	<b>73.265</b>	<b>49096.47</b>	<b>133717.554</b>	<b>180.63</b>	<b>284.696</b>	<b>1.94</b>	<b>2.069</b>	<b>182.57</b>	<b>286.765</b>	<b>49279.04</b>	<b>134004.319</b>

Source: Department of Economics & Statistics, Kerala



TABLE – 7

## ESTIMATED PRODUCTIVITY OF CROPS 2009-10

Kg/ha

Sl. No.	District	Rice			Coconut (Nos/ha)	Arecanut	Tapioca	Raw Cashewnuts	Black Pepper	Rubber	Banana	Plantain	Jack (Nos/ha)	Cocoa	Sesamum
		Autumn	Winter	Summer											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Thiruvananthapuram	2782	2414	2083	8280	517	26284	403	210	1409	7344	9019	4615	333	
2	Kollam	2346	2304	1867	7270	748	29711	445	184	1408	6588	6593	3480	200	647
3	Pathanamthitta	2520	2471	2619	7031	557	46092	386	236	1549	8297	9726	4114	569	
4	Alappuzha	3167	3026	2758	6455	589	27346	386	97	1520	8033	6331	3695	598	210
5	Kottayam	2915	2433	2417	5003	770	38674	314	144	1513	9051	8425	4519	613	
6	Idukki	2567	2682	2491	5236	1143	35364	402	297	1376	7677	7297	3435	493	400
7	Eranakulam	1908	2074	1649	5284	1091	43370	375	151	1546	9044	6619	4508	536	133
8	Thrissur	1774	2279	3152	6941	991	30558	407	183	1452	7896	5467	3972	224	333
9	Palakkad	2497	2783	2685	7292	1133	31807	349	195	1348	7559	9200	4473	819	111
10	Malappuram	1974	2088	3306	9808	1277	38826	508	95	1261	6997	4960	2812	677	414
11	Kozhikode	1277	1143	2018	7284	1264	28070	340	127	1389	7522	3735	2508	543	
12	Wayanad		2490	2819	4510	496	47478	700	271	864	8611	5711	3074	364	0
13	Kannur	1914	1998	1450	6139	1266	37321	1114	260	1326	7264	3875	3709	484	
14	Kasaragod	2304	1843	2052	7672	1814	22748	632	230	1274	7821	5378	3419	151	
	<b>State</b>	<b>2486</b>	<b>2533</b>	<b>2719</b>	<b>7278</b>	<b>1177</b>	<b>33737</b>	<b>731</b>	<b>248</b>	<b>1419</b>	<b>7923</b>	<b>7082</b>	<b>3583</b>	<b>512</b>	<b>339</b>

TABLE – 8

## NET AREA IRRIGATED (SOURCE-WISE) 2009-10

Area in hectares

Sl. No.	District	Government Canal	Private Canal	Government tanks	Private tanks	Government wells	Private wells	Minor irrigation	Other sources	Tube wells	Total
1	2	3	4	5	6	7	8	9	10	11	12
1	Thiruvananthapuram	3583	48	263	78	0	2278	0	290	18	6558
2	Kollam	1169	64	2	106	7	2097	8	569	1	4023
3	Pathanamthitta	2737	9	0	123	0	1981	36	1325	1	6212
4	Alappuzha	2003	8	0	2574	8	1022	337	22557	5473	33982
5	Kottayam	0	0	9	138	0	1239	183	13838	18	15425
6	Idukki	3905	409	5	9391	0	3949	18	10609	1006	29292
7	Eranakulam	11015	135	273	1694	92	6844	4078	2233	461	26825
8	Thrissur	18323	0	274	3779	28	35854	311	7773	694	67036
9	Palakkad	46513	261	683	5126	31	19595	617	11801	5008	89635
10	Malappuram	2656	469	14	4220	3	11744	783	4629	1002	25520
11	Kozhikode	1340	67	1	156	24	3141	3	650	65	5447
12	Wayanad	78	0	15	63	0	66	158	13528	0	13908
13	Kannur	696	1119	127	1669	35	14489	83	3635	416	22269
14	Kasaragod	795	67	54	10014	182	21183	179	3357	4299	40130
	<b>State</b>	<b>94813</b>	<b>2656</b>	<b>1720</b>	<b>39131</b>	<b>410</b>	<b>125482</b>	<b>6794</b>	<b>96794</b>	<b>18462</b>	<b>386262</b>

TABLE – 9

## GROSS AREA UNDER IRRIGATION (CROP-WISE) 2009-10

Area in hectares

Sl. No.	Districts	Paddy	Tubers	Vegetables	Coconut	Arecanut	Cloves	Nutmeg	Other spices & condiments	Banana	Betel leaves	Sugar cane	Other Crops
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Thiruvananthapuram	2867	2754	947	2126	9	0	1	0	2343	19	0	2084
2	Kollam	1300	4643	1155	829	25	3	15	8	1145	42	0	3
3	Pathanamthitta	2912	821	963	653	23	18	401	62	1214	38	0	58
4	Alappuzha	31898	821	1387	7802	25	0	60	296	495	42	65	710
5	Kottayam	15006	0	1191	150	14	170	1254	9	936	10	0	5
6	Idukki	2281	0	862	697	180	68	647	44	688	0	2200	89
7	Eranakulam	9481	63	1455	11880	1639	2	5825	138	4969	10	1	851
8	Thrissur	21507	291	825	40312	5638	14	4120	1650	2391	6	1	1412
9	Palakkad	57295	767	3754	26041	4963	0	56	1516	7195	1	629	5163
10	Malappuram	6549	2213	1523	14587	4868	1	316	155	4900	98	0	403
11	Kozhikode	855	195	716	2912	318	0	0	14	1360	2	0	61
12	Wayanad	11528	0	805	105	332	0	0	63	4880	0	1	44
13	Kannur	3005	329	988	14046	2742	0	35	411	2541	6	1	207
14	Kasaragod	2103	168	473	29773	13464	18	39	1610	475	12	1	1088
	<b>State</b>	<b>168587</b>	<b>13065</b>	<b>17044</b>	<b>151913</b>	<b>34240</b>	<b>294</b>	<b>12769</b>	<b>5976</b>	<b>35532</b>	<b>286</b>	<b>2899</b>	<b>12178</b>

TABLE 10

TABLE 10

## DISTRICTWISE RAINFALL IN MMS FOR THE YEAR 2010

<i>DISTRICT</i>	<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JUL</i>	<i>AUG</i>	<i>SEP</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>	<i>ANNUAL</i>
<i>ALAPPUZHA</i>	17.5	2.2	92.5	164.8	322.0	529.2	473.2	255.9	242.3	555.2	309.3	96.8	3060.9
<i>ERNAKULAM</i>	9.8	0.0	30.5	230.1	240.5	848.9	688.1	357.1	456.9	619.0	517.5	62.8	4061.2
<i>IDUKKI</i>	12.5	0.0	41.3	159.6	182.9	786.5	778.6	543.6	306.1	428.5	305.6	24.5	3569.7
<i>KANNUR</i>	19.1	0.0	9.4	65.3	137.0	843.9	959.6	511.0	269.3	345.7	337.6	2.3	3500.2
<i>KASARAGOD</i>	7.3	0.0	0.1	35.3	78.5	1038.8	1276.2	681.1	357.1	283.5	241.6	17.3	4016.8
<i>KOLLAM</i>	11.5	0.0	59.1	221.1	203.1	357.5	362.5	304.8	258.1	528.3	388.4	95.0	2789.4
<i>KOTTAYAM</i>	9.6	1.4	96.7	201.7	354.9	664.6	568.1	294.4	366.9	557.5	455.8	91.2	3662.8
<i>KOZHIKODE</i>	7.1	0.3	0.0	143.3	249.9	1094.5	897.8	368.9	323.0	495.0	280.0	13.9	3873.7
<i>MALAPPURAM</i>	1.4	0.0	0.5	93.0	119.0	654.5	523.9	302.9	236.0	416.4	252.3	20.0	2619.9
<i>PALAKKAD</i>	1.9	0.0	10.8	131.2	109.1	545.3	508.4	267.2	180.0	397.9	279.8	24.0	2455.6
<i>PATHANAMTHITTA</i>	31.0	0.7	66.3	209.9	268.2	502.5	432.5	402.2	259.4	454.9	526.4	89.1	3243.1
<i>THIRUVANANTHAPURAM</i>	108.3	0.0	73.1	109.3	216.7	237.0	234.9	118.7	114.1	414.4	326.0	188.3	2140.8
<i>THRISSUR</i>	18.4	0.0	9.3	74.7	197.4	775.8	601.5	236.6	308.0	563.9	332.6	20.5	3138.7
<i>WAYANAD</i>	37.0	14.1	13.1	131.3	124.4	378.2	494.8	292.8	163.5	172.4	218.0	4.4	2044.0
<i>AVERAGE FOR KERALA</i>	18.5	0.9	31.9	139.4	188.9	668.4	631.1	361.3	271.6	441.4	336.8	46.8	3155.5

Source: India Meteorological Department

**TABLE-11**

**AVERAGE FARM WHOLESALE PRICES OF IMPORTANT CROPS IN KERALA FOR THE YEAR 2009-10**

In ₹

Sl. No	Item	Unit	2009					
			Jul	Aug	Sep	Oct	Nov	Dec
1	2	3	4	5	6	7	8	9
1	Paddy local	Qtl.	934.04	943.13	939.22	959.85	1003.63	1010.95
2	Paddy H/Y	Qtl.	892.68	910.83	904.40	985.33	1021.67	1010.36
3	Pepper Dry	Qtl.	11825.00	13305.30	13434.09	13392.19	13845.00	13382.64
4	Ginger (Dry)	Qtl.	8750.00	8825.00	7966.67	8662.50	8475.00	8750.00
5	Ginger	Qtl.	4683.33	4917.31	3411.33	2205.77	2143.75	2252.78
6	Turmeric dry	Qtl.	4433.33	5000.00	6500.00	6500.00	6500.00	7800.00
7	Banana local	Qtl.	1874.12	2413.56	2087.29	2085.65	2218.22	1788.77
8	Plantain palayamkodan	Qtl.	903.60	1115.25	1100.85	990.00	981.04	921.63
9	Plantain Rasakadali	Qtl.	1866.00	2224.02	2131.73	1963.21	1958.17	1804.25
10	Plantain poovan	Qtl.	1879.76	2160.87	2224.07	2094.79	2076.14	2104.76
11	Cashew	Qtl.						4000.00
12	Tapioca	Qtl.	527.77	535.54	547.37	553.95	557.02	560.39
13	Coconut with Husk	100 nos.	429.45	435.19	419.85	419.26	426.11	463.56
14	Arecanut (Ripe)	100 nos.	47.68	43.58	42.84	39.76	37.12	35.40
15	Sesamum	Kg.	38.00	38.00	65.00			
16	Cloves	Kg.	320.00	307.50	279.38	291.67	303.33	300.50
17	Nutmeg	Kg.	102.90	127.89	140.72	147.48	173.89	188.53

**TABLE-11 (Contd...)**

Sl. No	Item	Unit	2010					
			Jan	Feb	Mar	Apr	May	Jun
1	2	3	10	11	12	13	14	15
1	Paddy local	Qtl.	1013.80	1019.55	1021.60	1027.75	998.21	1017.50
2	Paddy H/Y	Qtl.	1006.29	1030.35	1043.39	1054.55	1049.78	1038.96
3	Pepper Dry	Qtl.	12789.67	12394.68	12865.31	14099.49	14905.98	15547.62
4	Ginger (Dry)	Qtl.	10630.00	9422.22	10020.83	11514.29	12900.00	14350.00
5	Ginger	Qtl.	2520.00	2648.53	3066.41	3587.50	4146.67	4788.33
6	Turmeric dry	Qtl.	7866.67	7885.42	8571.43	9846.43	10613.64	11850.00
7	Banana local	Qtl.	1848.28	1701.51	1669.49	1887.28	1923.15	1931.47
8	Plantain palayamkoda	Qtl.	930.88	921.88	883.33	875.93	925.91	993.43
9	Plantain Rasakadali	Qtl.	1769.34	1687.05	1556.71	1519.85	1626.82	1879.72
10	Plantain poovan	Qtl.	2065.91	1954.46	1854.46	1893.48	1998.08	2100.00
11	Cashew	Qtl.	4000.00	4400.78	4485.23	4001.52	3216.41	3000.00
12	Tapioca	Qtl.	564.27	584.41	622.28	655.37	662.46	682.37
13	Coconut with Husk	100 nos.	475.87	494.39	498.85	498.10	497.22	500.53
14	Areca nut (Ripe)	100 nos.	37.77	41.68	46.33	55.52	60.50	65.65
15	Sesamum	Kg.					65.00	
16	Cloves	Kg.	292.14	280.63	279.69	285.71	287.86	285.83
17	Nutmeg	Kg.	212.45	205.70	216.50	202.67	193.44	178.79

**TABLE – 12**

**COST OF CULTIVATION PER HECTARE OF SOME CROPS DURING THE YEAR 2008-09**

Sl. No	Component of different crops	Cost per hectare (₹)									
		Paddy			Coconut	Arecanut	Tapioca	Banana	Pepper	Ginger	Turmeric
		Autumn	Winter	Summer							
1	2	3	4	5	6	7	8	9	10	11	12
1	Hired human labour	13179	13883	13771	14647	17331	21770	58455	12858	31428	18654
2	Animal labour	311	248	168	70	0	63	0	0	14	0
3	Machine labour	3282	4397	4562	279	931	799	162	48	2336	102
4	Seed/Seedlings	1206	1441	1471	228	49	1557	9470	339	24440	8065
5	Farmyard manure & Chemical fertilizers	2840	3265	3182	6097	7891	6604	19173	5163	14475	7239
6	Plant protection	498	363	893	15	665	127	1395	163	835	62
7	Land tax & irrigation cess	205	365	362	91	59	101	165	57	50	216
8	Repair & Maintenance charges of implements, machinery & buildings	411	615	340	632	1438	908	1123	1980	1337	1297
9	Interest on working capital	1172	1329	1374	2243	2905	3402	7546	1973	7654	3627
10	Other expenses	2119	2977	3423	1091	2178	3905	15367	1163	4011	2147
11	Interest on fixed capital	2426	1443	923	5577	10773	5713	6031	12673	205722	9658
12	Imputed value of household labour	2213	1873	2183	2949	5029	6285	10806	5151	8633	10962
<b>13</b>	<b>Total Cost</b>	<b>29862</b>	<b>32199</b>	<b>32652</b>	<b>33919</b>	<b>49249</b>	<b>51234</b>	<b>129693</b>	<b>41568</b>	<b>300935</b>	<b>62029</b>
<b>14</b>	<b>Value of output received (₹/ha)</b>	<b>38624</b>	<b>43300</b>	<b>40652</b>	<b>45157</b>	<b>56697</b>	<b>79984</b>	<b>206181</b>	<b>56234</b>	<b>186144</b>	<b>92117</b>

**TABLE 13**  
**Area, Production and Productivity of Crops in Kerala (1970-2010)**  
**(Area in Lakh ha, Production in '000 MT & Productivity in Kg/ha)**

Year	Rice			Coconut			Rubber		
	Area	Production	Productivity	Area	Production (million nuts)	Productivity (nuts/ha)	Area	Production	Productivity
1970-71	8.7493	1292.01	1477	7.1914	3981	5536	1.7926	78.73	439
1971-72	8.7516	1351.74	1545	7.3026	4054	5539	1.8861	88.93	472
1972-73	8.7370	1376.37	1575	7.4543	3921	5260	1.9560	93.95	470
1973-74	8.7468	1257.67	1438	7.4483	3703	4972	1.9960	118.02	591
1974-75	8.8147	1333.93	1513	7.4817	3719	4971	2.0230	122.00	601
1975-76	8.7602	1331.19	1520	6.9295	3439	4963	2.0540	126.00	612
1976-77	8.5437	1254.00	1468	6.9499	3348	4817	2.0972	139.35	664
1977-78	8.4037	1294.64	1541	6.7348	3053	4533	2.0720	139.35	664
1978-79	7.9924	1272.74	1592	6.6063	3211	4860	2.1441	123.68	577
1979-80	7.9327	1299.70	1638	6.6266	3032	4576	2.1658	123.68	571
1980-81	8.0170	1272.00	1587	6.5137	3008	4618	2.3780	140.33	590
1981-82	8.0692	1339.87	1660	6.5288	3024	4632	2.4800	139.44	562
1982-83	7.9789	1308.01	1639	6.7438	3184	4721	2.5970	152.66	588
1983-84	7.4009	1207.92	1632	6.8228	2602	3814	2.9430	162.21	551
1984-85	7.3038	1255.94	1720	6.8748	3453	5000	3.1020	172.10	555
1985-86	6.7828	1173.05	1729	7.0468	3377	4792	3.3032	184.70	559
1986-87	6.6313	1133.79	1710	7.0611	3173	4494	3.4781	202.13	581



Year	Rice			Coconut			Rubber		
	Area	Production	Productivity	Area	Production (million nuts)	Productivity (nuts/ha)	Area	Production	Productivity
1987-88	6.0408	1032.61	1709	7.7537	3346	4315	3.5896	216.56	603
1988-89	5.7756	1002.32	1735	8.6647	3841	4432	3.7967	238.41	628
1989-90	5.8339	1141.23	1956	8.3217	4358	5017	3.9647	275.40	694
1990-91	5.5945	1086.58	1942	8.7002	4232	5289	4.1162	307.52	800
1991-92	5.4133	1060.35	1959	8.6306	4641	5377	4.2577	343.11	806
1992-93	5.3761	1084.88	2018	8.7701	5124	5843	4.4410	368.65	830
1993-94	5.0783	1003.39	1976	8.8229	5129	5885	4.3714	408.31	934
1994-95	5.0329	975.07	1937	9.1100	5335	5856	4.4330	442.83	999
1995-96	4.7100	953.00	2023	9.1400	5155	5638	4.4900	474.56	1057
1996-97	4.3100	871.00	2021	9.0200	5276	5849	4.5557	512.76	1126
1997-98	3.8712	764.61	1975	8.8434	5210	5891	4.6528	541.94	1165
1998-99	3.5263	726.74	2061	8.8229	5132	5817	4.6992	559.10	1190
1999-00	3.4977	764.61	2203	8.9913	5167	5747	4.7290	572.80	1211
2000-01	3.4746	751.33	2162	9.2578	5536	5980	4.7436	579.87	1222
2001-02	3.2207	703.50	2182	9.0572	5479	6049	4.7504	580.35	1222
2002-03	3.1052	688.86	2218	8.9920	5709	6349	4.7604	594.92	1250
2003-04	2.8734	570.05	1984	8.9850	5876	6540	4.7840	655.13	1369
2004-05	2.8997	667.11	2301	8.9927	6001	6673	4.8066	690.78	1437
2005-06	2.7574	629.99	2398	8.9783	6326	7046	4.9440	739.23	1495
2006-07	2.63529	641.575	2437	8.72943	6054	6935	5.0224	780.41	1554
2007-08	2.28938	528.488	2308	8.18812	5641	6889	5.12045	753.135	1471
2008-09	2.34265	590.241	2520	7.87769	5802	7365	5.17475	783.485	1514
2009-10	2.34013	598.339	2557	7.78618	5667	7278	5.25408	745.510	1419

Source : Department of Economics & Statistics

Year	Tapioca			Arecanut			Cashewnut		
	Area	Production	Productivity	Area	Production *	Productivity #	Area	Production	Productivity
1970-71	2.9355	4617.19	15729	0.8582	12738.00	148430	1.0271	115.24	1122
1971-72	3.0326	5429.28	17902	0.8666	12832.00	148074	1.0066	112.94	1122
1972-73	3.0483	5692.36	18674	0.8863	13136.00	148207	1.0149	113.88	1122
1973-74	3.0645	5659.52	18468	0.9070	13459.00	148389	1.0316	115.75	1122
1974-75	3.1788	5325.12	16752	0.9300	13777.00	148072	1.0490	118.00	1122
1975-76	3.2687	5390.22	16491	0.7662	11387.00	148620	1.0906	119.89	1099
1976-77	3.2328	5125.52	18855	0.6836	11303.00	165355	1.1333	87.26	770
1977-78	2.8972	4188.57	14457	0.6243	10548.00	168965	1.2696	84.73	667
1978-79	2.7348	4044.05	14757	0.6232	10919.00	175217	1.3655	84.19	617
1979-80	2.4376	4088.92	16774	0.6082	10829.00	177938	1.3992	82.76	591
1980-81	2.4498	4060.91	16830	0.6124	10805.00	176431	1.4127	81.90	580
1981-82	2.4356	4041.16	16592	0.6125	10701.00	174724	1.3996	78.90	564
1982-83	2.2762	3848.72	16908	0.6082	11027.00	181317	1.4131	75.50	534
1983-84	2.3301	3903.17	16751	0.5960	8318.00	139554	1.4234	77.38	543
1984-85	2.3275	3694.27	15872	0.5909	8589.00	145357	1.3686	72.29	528
1985-86	2.0292	3276.88	16149	0.5869	10664.00	181697	1.3775	80.20	582
1986-87	1.9288	3292.30	17069	0.5773	10563.00	182959	1.3866	88.71	664
1987-88	1.7291	3236.35	18717	0.6053	10665.00	176000	1.2156	81.48	670
1988-89	1.6948	3165.27	18676	0.6247	11450.00	183287	1.2474	108.26	867

Year	Tapioca			Arecanut			Cashewnut		
	Area	Production	Productivity	Area	Production *	Productivity #	Area	Production	Productivity
1989-90	1.6015	3053.97	19069	0.6318	11964.00	189363	1.2366	106.26	859
1990-91	1.4649	2803.00	19314	0.6482	13074.00	201697	1.1562	102.77	888
1991-92	1.4188	2657.87	18733	0.6344	13116.00	206747	1.1206	104.60	933
1992-93	1.3503	2629.13	19470	0.6393	13643.00	213405	1.0904	95.62	877
1993-94	1.3098	2602.21	19866	0.6915	15357.00	222073	1.0673	87.51	820
1994-95	1.1429	2344.29	20512	0.7168	17466.00	243680	1.0345	95.55	924
1995-96	1.1360	2500.11	22008	0.7070	17429.00	245825	1.0328	82.76	801
1996-97	1.2039	2691.12	22354	0.7607	17039.00	223991	0.9709	68.96	710
1997-98	1.2139	2741.70	22586	0.7335	17279.00	235570	0.9469	56.89	601
1998-99	1.2991	2810.93	21638	0.8065	18360.00	227650	0.8513	56.55	664
1999-00	1.1192	2531.75	22621	0.8194	83.34	1017	0.8940	65.54	733
2000-01	1.1461	2586.90	22572	0.8736	87.95	1007	0.9212	66.18	718
2001-02	1.1119	2455.88	22087	0.9319	84.68	909	0.8972	65.87	734
2002-03	1.0418	2413.22	23164	0.9749	107.28	1100	0.8855	66.09	746
2003-04	0.9429	2540.05	26945	1.03	105.49	1029	0.8637	65.66	760
2004-05	0.8848	2400.04	27123	1.08	110.34	1026	0.8154	60.58	743
2005-06	0.9054	2568.28	28367	1.0859	119.31	1099	0.7829	68.26	872
2006-07	0.87128	2518.99	28911	1.02078	109.968	1077	0.70463	61.680	875
2007-08	0.818812	2554.455	30438	0.99787	114.690	1149	0.58381	52.402	898
2008-09	0.87241	2712.114	31088	0.97492	125.654	1289	0.53007	42.334	799
2009-10	0.74925	2525.384	33705	0.99188	116.763	1177	0.48972	35.818	731

\* 1970-71 – 1998-99 – Production in million nuts, 1999-00 – onwards '000 tonnes.

# 1970-71 – 1998-99 – Productivity (nuts/ha), 1999-00 – onwards Productivity in Kg/ha.

Year	Banana			Pepper			Ginger		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1970-71	0.4876	368.98	7568	1.175	25.03	213	0.1217	19.68	1617
1971-72	0.4789	362.27	7565	1.163	25.1	216	0.1187	23.21	1964
1972-73	0.4729	357.88	7568	1.163	25.1	216	0.1180	23.49	1990
1973-74	0.4672	353.62	7569	1.183	27.25	235	0.1204	26.68	2215
1974-75	0.4710	357.00	7564	1.184	27	230	0.1210	26.00	2134
1975-76	0.4720	357.00	7556	1.083	25.58	236	0.1167	28.84	2471
1976-77	0.5170	390.61	7556	1.087	24.5	225	0.1035	25.45	2459
1977-78	0.5165	394.07	7629	1.011	20.15	247	0.1267	32.11	2534
1978-79	0.5334	659.67	12367	1.067	26.33	247	0.1271	32.91	2589
1979-80	0.5027	622.06	12375	1.058	28.9	273	0.1413	35.83	2536
1980-81	0.4926	317.41	6443	1.081	28.52	264	0.1266	32.04	2530
1981-82	0.4999	627.53	6552	1.082	27.51	254	0.1345	34.38	2557
1982-83	0.4931	293.84	5954	1.075	24.53	228	0.1266	31.58	2994
1983-84	0.4959	316.65	6385	1.061	24.55	231	0.1488	36.71	2466
1984-85	0.5142	331.19	6441	1.058	17.35	164	0.1459	41.25	2827
1985-86	0.5302	361.13	6813	1.216	33.12	272	0.1567	44.47	2837
1986-87	0.5328	362.34	6801	1.289	30.38	236	0.1659	47.65	2872
1987-88	0.5600	422.51	7545	1.461	40.82	320	0.1444	45.51	3151
1988-89	0.5931	437.61	7378	1.570	43.24	275	0.1417	45.02	3177

Year	Banana			Pepper			Ginger		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1989-90	0.6077	450.18	7408	1.671	54.14	323	0.1443	47.27	3275
1990-91	0.6574	491.93	7482	1.685	46.8	277	0.1414	45.68	3230
1991-92	0.6507	196.41	7628	1.781	50.31	282	0.1540	50.27	3257
1992-93	0.6796	520.06	7652	1.835	49.67	271	0.1394	45.40	3257
1993-94	0.7215	566.65	7854	1.844	49.55	269	0.1113	37.68	3287
1994-95	0.7257	574.27	7913	1.867	59.26	317	0.1387	49.75	3588
1995-96	0.7286	592.41	8131	1.916	68.57	358	0.1293	46.45	3594
1996-97	0.7808	742.54	9510	1.829	56.55	309	0.1320	46.37	3513
1997-98	0.8064	793.34	9838	1.804	46.04	255	0.1235	43.62	3531
1998-99	0.7745	647.89	8365	1.820	68.51	376	0.1457	49.95	3428
1999-00	0.9229	808.72	8953	1.840	56.43	306	0.1126	41.34	3670
2000-01	0.9941	731.66	7352	2.021	60.93	301	0.1161	42.70	3677
2001-02	1.0605	769.08	7257	2.039	58.24	286	0.1071	40.18	3753
2002-03	1.1048	731.09	7522	2.086	67.36	323	0.0899	32.41	3602
2003-04	1.0940	821.94	7699	2.164	69.02	319	0.0851	32.97	3872
2004-05	1.1347	891.49	7856	2.376	74.98	315	0.1000	45.31	4535
2005-06	1.1662	937.16	8037	2.379	87.61	368	0.1223	56.29	4603
2006-07	1.1223	899.40	7348	2.167	64.26	297	0.11082	42.49	3834
2007-08	1.10708	831.699	7513	1.757	41.95	239	0.08865	31.73	3579
2008-09	1.04865	835.612	7968	1.537	33.99	221	0.07421	30.81	4152
2009-10	0.99077	744.788	7515	1.715	42.46	248	0.05408	28.60	5288

Year	Tea			Coffee			Cardamom		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1970-71	0.3759	41.45	1103	0.3156	12.57	430	0.4749	1.25	26
1971-72	0.3708	42.80	1154	0.3286	14.11	429	0.4749	1.52	32
1972-73	0.3802	43.68	1138	0.3465	14.92	430	0.4749	1.22	26
1973-74	0.3769	48.36	1283	0.3581	15.46	432	0.4749	1.5	32
1974-75	0.3760	49.00	1301	0.3660	15.78	431	0.4660	2.05	44
1975-76	0.3770	45.80	1215	0.4178	17.53	419	0.4660	2.05	44
1976-77	0.3616	41.64	1152	0.4050	15.03	371	0.5168	1.42	27
1977-78	0.3611	51.98	1152	0.5264	27.65	525	0.5168	1.42	27
1978-79	0.3609	47.37	1312	0.5335	28.62	525	0.5518	2.90	53
1979-80	0.3613	52.43	1451	0.5795	30.18	521	0.5274	2.97	56
1980-81	0.3616	50.72	1402	0.5756	36.48	634	0.5638	3.10	55
1981-82	0.3613	47.63	1318	0.5791	33.66	581	0.5638	2.80	51
1982-83	0.3522	44.58	1266	0.6236	15.38	246	0.5439	1.90	35
1983-84	0.3502	58.18	1661	0.6401	9.56	149	0.5638	1.10	20
1984-85	0.3502	48.39	1382	0.6401	46.88	732	0.5878	2.85	48
1985-86	0.3476	52.63	1514	0.6564	23.55	359	0.6063	3.34	56
1986-87	0.3464	50.34	1453	0.6564	23.55	359	0.6274	2.50	40
1987-88	0.3464	51.95	1500	0.6564	22.93	349	0.6463	2.05	32
1988-89	0.3464	71.13	2055	0.6564	47.43	722	0.6455	2.82	44

Year	Tea			Coffee			Cardamom		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1989-90	0.3461	65.06	1880	0.7506	21.25	283	0.6455	2.82	44
1990-91	0.3462	60.64	1751	0.7506	20.19	278	0.4383	3.45	79
1991-92	0.3462	66.08	1909	0.8402	20.04	239	0.4367	3.45	79
1992-93	0.3449	54.44	1578	0.8402	36.17	306	0.4339	2.57	59
1993-94	0.3412	66.69	1954	0.8235	43.47	528	0.4346	4.43	102
1994-95	0.3475	60.72	1747	0.8235	46.24	562	0.4424	4.72	107
1995-96	0.3678	64.79	1762	0.8235	45.00	546	0.4425	5.38	122
1996-97	0.3460	69.32	2003	0.8301	47.32	570	0.4127	4.55	110
1997-98	0.3467	65.22	1882	0.8301	50.66	610	0.4087	5.29	129
1998-99	0.3681	68.37	1858	0.8368	61.15	731	0.4107	5.3	127
1999-00	0.3479	61.96	1781	0.8414	60.47	719	0.4149	6.59	159
2000-01	0.3685	69.13	1876	0.8474	70.55	833	0.4129	7.58	184
2001-02	0.3690	66.09	1791	0.8487	66.69	786	0.4133	8.38	203
2002-03	0.3607	55.35	1493	0.8311	63.32	762	0.4141	8.68	210
2003-04	0.3833	57.55	1502	0.8468	63.85	754	0.4133	8.88	215
2004-05	0.3504	49.51	1413	0.8464	54.30	641	0.4137	8.60	208
2005-06	0.3504	56.38	1609	0.8464	60.18	711	0.4137	9.77	236
2006-07	0.3536	53.69	1517	0.8457	59.47	703	0.4136	8.54	206
2007-08	0.3631	51.754	1432	0.8412	48.650	578	0.3976	7.031	117
2008-09	0.3656	51.726	1425	0.8470	57.200	675	0.4159	8.550	206
2009-10	0.3685	57.810	1569	0.8480	59.250	699	0.4159	7.800	188

Source: Department of Economics & Statistics, Kerala

TABLE 14

MONTHLY MEAN MAXIMUM AND MINIMUM TEMPERATURE (°C) YEAR : 2010													
STATION	TEMPERATURE (°C)	JAN	FEB	MAR	APL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ALAPPUZHA	MAXIMUM	32.2	32.8	34.2	34.0	33.0	30.2	29.1	28.3	29.3	30.4	30.4	30.8
	MINIMUM	21.9	23.2	24.6	24.4	24.2	23.6	23.1	24.3	24.6	24.3	24.6	23.7
KOZHIKODE CITY	MAXIMUM	32.8	33.9	34.9	35.0	34.4	30.9	29.6	29.2	31.3	31.1	31.5	32.5
	MINIMUM	23.8	24.5	26.7	26.7	26.5	24.7	23.9	23.9	24.4	24.2	24.1	23.4
KANNUR	MAXIMUM	34.0	34.4	35.5	35.9	35.1	31.2	29.3	28.8	30.7	30.9	31.8	32.6
	MINIMUM	23.5	23.5	25.5	26.1	25.8	23.9	22.9	22.9	23.3	23.4	22.9	21.8
KARIPUR AIRPORT	MAXIMUM	32.6	33.7	34.4	34.5	33.8	30.2	28.8	28.4	30.1	29.8	30.3	31.0
	MINIMUM	23.0	23.6	25.7	25.9	25.9	24.0	23.1	23.2	23.5	23.6	23.2	22.4
VELLANIKKARA	MAXIMUM	32.5	34.8	36.2	35.2	33.3	30.4	29.2	29.3	30.5	29.8	30.4	30.9
	MINIMUM	22.7	23.7	24.8	25.1	25.6	23.8	22.9	23.2	23.1	22.4	22.5	22.0
NAVAL AIR STATION KOCHI	MAXIMUM	32.3	33.1	33.7	33.8	33.3	31.3	30.7	30.1	31.4	30.7	31.0	31.4
	MINIMUM	23.3	24.7	26.2	25.7	26.0	24.0	23.4	23.8	23.9	23.7	23.9	24.1
COCHIN INTERNATIONAL AIRPORT	MAXIMUM	33.6	35.2	35.7	34.9	33.4	30.7	29.9	29.6	30.9	30.5	30.7	31.5
	MINIMUM	21.1	22.3	24.2	24.2	25.0	23.7	23.0	23.4	23.4	22.7	22.7	21.6
KOTTAYAM	MAXIMUM	33.3	35.0	36.3	34.9	33.7	31.4	30.3	29.9	31.2	31.1	30.9	31.7
	MINIMUM	21.9	23.3	24.6	24.8	24.9	23.5	22.9	23.4	23.3	23.2	23.1	22.4
PUNALUR	MAXIMUM	34.7	37.0	37.9	33.0	33.6	31.0	29.6	30.1	31.3	30.1	29.9	31.7
	MINIMUM	21.8	22.7	23.8	24.9	25.0	22.3	20.0	21.1	21.3	23.0	22.9	22.0
THIRUVANANTHAPURAM CITY	MAXIMUM	32.5	33.6	35.0	33.9	33.0	31.6	30.5	30.3	31.2	30.8	31.0	30.8
	MINIMUM	22.4	23.5	24.7	25.6	25.5	24.2	23.4	23.5	23.9	23.9	23.5	22.7
THIRUVANANTHAPURAM AIR PORT	MAXIMUM	31.4	32.2	33.5	33.6	32.7	30.9	29.8	29.3	30.1	30.4	30.6	30.2
	MINIMUM	22.7	23.8	25.3	26.2	25.9	24.3	23.3	23.5	23.9	23.7	23.5	23.2

Source: India Meteorological Department



## **AGRICULTURE IMPORTANT SCHEMES**

### **RASHTRIYA KRISHI VIKAS YOJANA (RKVY)**

This special Central Assistance Scheme was launched to rejuvenate agriculture sector during 11th Five Year Plan. The scheme is being implemented with a total outlay of ` 22500 lakhs. The RKVY funds are provided to States as 100% grant by the Government of India.

The basic features of this scheme are:

- Incentivise States so as to increase public investment in agriculture and allied sectors.
- Provide flexibility and autonomy to the states in the process of planning and executing schemes.
- Ensure preparation of schemes based on agro climatic conditions, availability of technology and natural resources.
- Ensure that local needs / crops / priorities are better reflected in the plans.
- Reduce yield gap in important crops, through focussed interventions.
- Maximise returns to farmers.
- Bring about quantifiable changes in production and productivity.

For achieving this, the state will have to initiate specific projects with definite time-lines and clear objectives for agriculture and allied sectors. Each district will formulate District Agriculture Plan by including all resources available and by integrating the District Plans, the state will prepare a Comprehensive State Agriculture Plan. The District Agriculture Plans and the State Agriculture Plan prepared by the Department of Agriculture would be integrated with the State Annual Plan by the State Planning Board.

### **FOOD SECURITY PROJECT**

State Food Security Project 2011-'12 is being implemented with a total outlay of ` 2800 Lakhs. The ongoing schemes on rice development, support for macro management, National Food Security Mission and other food security related projects of Local Self Governments, Animal Husbandry, Kerala Agricultural University etc. are linked with this major programme.

Components are;

- Scaling up of successful models for food security excluding fallow land cultivation
- Food security through women groups
- Support for upland rice production
- Mechanisation service support
- Need based support for critical gaps in other schemes
- Need based support to link with Dairy, Animal Husbandry and Fisheries pertaining to paddy farmers

- Soil fertility analysis including micro nutrients
- Data generation through department of Economics & Statistics
- Support for irrigation
- Awareness and publicity.

### **PENSION SCHEME FOR FARMERS**

The state government is implementing monthly pension scheme for small and marginal farmers in addition to Kissan Abhiman, monthly pension scheme for paddy farmers. Farmers enrolled under Kissan Abhiman is given monthly pension of ` 300. ` 25,000 is given as incentive for marriage of one daughter of the farmer.

### **LEADS (Lead Farmer Centered Extension Advisory and Delivery Services)**

In order to strengthen the agricultural extension in the state, a concept of frontier extension system revolving around Lead Farmer- Satellite Farmer, organised on an Agro Ecological Zone based strategy is being implemented in Kollam, Palakkad and Kannur districts.

Objectives of the project are :

- Utilize the potential of Lead Farmers for transfer of technology.
- Address field level problems of selected farmers through the support of regular field visit by technical officers.
- Introduce a regular and systematic field visit oriented extension system in the state.
- Intervene and advice farmers through the preparation of monthly technology advice with the support of KVK, Research Stations and development specialists.
- Generation of location specific technologies through PTD.
- Facilitating expert level consultation through audio conferencing.
- Enhance technical knowledge of field level technical officers.

### **REPLANTING AND REJUVENATION OF COCONUT GARDENS**

The Coconut Development Board assisted centrally sponsored scheme is being implemented on a pilot basis in the districts of Thiruvananthapuram, Kollam and Thrissur from 2009-2010 to 2012 -2013.

The objective of the scheme is total removal of disease advanced, unproductive, old and senile palms in the thee Districts of Thiruvananthapuram, Kollam and Thrissur.

Components are :

- Cutting and removal of all old, senile, unproductive and disease advanced palms followed by replanting
- Rejuvenation of existing gardens through integrated management practices
- Assistance for replanting
- Training and capacity building.

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

Agricultural Technology Management Agency (ATMA) is a registered society of key stakeholders involved in agricultural activities for sustainable agricultural development in the district. It is the focal point for integrating Research and Extension activities and decentralizing day-to-day management of the public Agricultural Technology System (ATS).

ATMA covers the activities in Agriculture and allied sectors adopting a farming systems approach and convergence of programmes of related departments and institutions. In Kerala ATMA is an autonomous institution formed and registered at district level under Travancore-Cochin Literary Scientific Charitable Societies Act 1955. The ATMA has two bodies viz. ATMA Governing Board and ATMA Managing Committee. It operates under the guidance of a Governing Board (GB) that determines programme priorities and access the programme impact. The executive head of ATMA is known as the Project Director and reports directly to the ATMA Governing Board.

#### **Functions of ATMA**

- Strategic Planning
- Networking and Co-ordination
- Integrated extension delivery
- Information management
- Farmer facilitation and empowerment
- Training and capacity building
- Fund Management
- Participatory Technology Development
- Monitoring and Evaluation

ATMA at the district level is responsible for all the technology dissemination activities. It maintains a link with all the allied line departments, research organizations, NGOs and other agencies associated with agricultural development in the district. Thus research and extension units within the district such as Zonal Research Stations or substations, Krishi Vigyan Kendras and the key line Departments of Agriculture, Animal Husbandry, Fisheries, Sericulture, Agro industries etc would constitute members of ATMA.

### **State Agricultural Management and Extension Training Institute (SAMETI)**

Human Resource Development is an important area, which needs to be considered for implementation of developmental programmes. To support the State Extension Programme for Extension Reforms SAMETI plays an important role. SAMETI will provide HRD support in innovative areas of extension delivery for extension functionaries for effective implementation of ATMA scheme. The development of Human Resource is increasingly assuming significance in effective functioning of the organisations. Training is one of the important approaches to develop HR in the organisation related to bring out socioeconomic changes in rural areas. HRD support for implementation of ATMA at the state level for the officers involved in the implementation of ATMA is being imparted by SAMETI.

The Department of Agriculture, Kerala with the support of ATMA has established SAMETI in Thiruvananthapuram, the state capital of Kerala. SAMETI is an autonomous institution registered under Travancore Cochin Literary Scientific and Charitable Societies Act, 1955, with Reg. No.144/08. SAMETI is now functioning in the Urban Agricultural Wholesale Market Campus at Anayara, Thiruvananthapuram, Kerala, which is located in Kazhakkuttam – Kovalam NH By-pass road.

**Mandates:**

The key mandates of SAMETI are;

1. To function as the nodal training institute at state level in the area of agricultural management
2. To provide capacity building support in extension management and related areas to extension functionaries both for public and private sector.
3. To provide consultancy services in the areas like project planning, appraisal, implementation etc.
4. Organise need based training programme for middle level and grass root level agricultural /extension functionaries,
5. Develop modules on management, communication, participatory methodologies etc.
6. Co-ordination of farmers and field visits.
7. Publishing news letters, bulletins etc.

**Infrastructure facilities of the Institute**

- ◆ Air-conditioned training hall – 2 numbers, seating capacity 50 participants each
- ◆ Audio visual equipment
- ◆ PA system
- ◆ Most modern poly vision touch screen
- ◆ Hostel facilities
- ◆ Library
- ◆ Computer with networking facilities

**Organisational setup**

For the smooth functioning of SAMETI, Government has constituted various committees and bodies viz., General Council, Executive Council, and Technical Support Group.

**The General Council** of SAMETI shall be responsible for taking decisions on policy matters of the SAMETI in accordance with the rules and bye-laws. Agricultural Production Commissioner of the state is the Chairman of the General Council.

**The Executive Council** of SAMETI shall be responsible for the management and administration of the affairs of the SAMETI in accordance with the rules and bye-laws. Secretary (Agriculture) is the Chairman of the Executive Council.

**Technical Support Group** is a multidisciplinary team of experts from different disciplines to advice and recommend SAMETI to undertake various activities.

**Training programmes of SAMETI**

Participatory training methodology is mainly followed by SAMETI in the conduct of trainings. Other learning tools such as field visits, group discussion, experience sharing, group exercises are also included to facilitate learning.

The training programmes of SAMETI are mainly meant for officers of Agriculture Dairy

#### **IDUKKI PACKAGE**

The report on Dr. M.S. Swaminathan commission on Idukki deals with the problems and possible solutions relating to Idukki district, with a financial outlay of ` 1876 Lakhs.

The recommendations in this report are made after giving due consideration to ongoing programmes and resources being made available thereof. These are mainly focused to small, marginal and tribal farmers and other economically disadvantaged sections among the people with stress on sustainability agricultural production system and strengthening the regional ecology. The major recommendations of the commission are :

- Common Infrastructure and service facility and capacity building
- Ecological Sector - strengthening forest cover and ecological security
- Promotion of agri produce marketing
- Providing rural road connectivity to strengthen market linkage
- Conservation Farming and sustainable agriculture
- One time special research support on plantation crops
- Relief to the distress of Cardamom farmers
- Distress relief to the Pepper farmers
- Promotion of Rubber Research
- Promotion of Vegetables and Fruits production and income generation
- Relief to the Coffee farmers distress
- Relief to the distress of Tea farmers
- Restoration of Coconut cultivation for enhanced income generation
- Animal Husbandry / Dairy farming
- Promotion of sugarcane and silk production
- Immediate relief on farm loan liabilities.

Development, Animal & Fisheries Departments, KAU, KVK, NGO, etc., who are the major stakeholders of ATMA programme. The training programmes are organised on matter related to Agriculture Management & Extension on areas like Human Resource Development, Management Development, Communication, Information Technology, Participatory Development and Monitoring & Evaluation.

Besides these, training programmes sponsored by MANAGE & Distance Education programmes viz., Post Graduate Diploma in Agricultural Extension Management – PGDAEM are also undertaken by SAMETI. Conduct of Agri fairs, seminars, workshops, evaluation studies are also some of the other areas of activities of SAMETI.

Resource persons are mainly drawn from Departments of Agriculture / Animal Husbandry / Dairy / Fisheries, MANAGE, Central and State Institutes / Organisation, Retd. Professors and Experts on honorarium basis.

#### **KUTTANAD PACKAGE**

In continuation of the Special Rehabilitation package for the farmers announced by Govt. of India in 31 distressed districts of Andhra Pradesh, Karnataka, Kerala and Maharashtra, GOI has decided to give special assistance for improving the farming conditions in Alappuzha and Idukki districts of Kerala. In order to develop a special plan of action for Alappuzha and Idukki districts, the M.S. Swaminathan Research Foundation (MSSRF), Chennai has been entrusted by GOI.

The MSSRF has prepared a detailed report for the development of Kuttanad Wetland Eco System and entire Alappuzha district covering the measures for strengthening the ecological security and the measures for expanding sustainable livelihood opportunities for the people of the area. All the recommendations were grouped under 15 Tasks. The total amount projected for the development is ₹ 1840.00 crores.

The major component suggested in the report is an infrastructure development for paddy cultivation. Out of the total provision suggested, around 45 per cent is for the development of infrastructure (₹ 836.00 crores) and another 20 per cent is for the improvement of canals, drains and water bodies (₹ 361.00 crores).

In the report the issues in Kuttanad Wetland Eco system are grouped under five major heads.

1. Ecological disaster and remedial action
2. Agricultural rehabilitation and alleviation of agrarian distress
3. Measures to revive fisheries based livelihoods
4. Strengthening research and information transfer
5. Backwater tourism.

#### **Task based Implementation Plan**

In order to further sharpen the preparation of projects and realization of outputs, the entire

recommendations were grouped under the following 15 Tasks under two broad categories, viz, Strengthening ecological security and expanding sustainable livelihood opportunities. The name of Tasks are shown below.

**A. Strengthening Ecological Security**

- Task 1 : Protection and ecological restoration of the Water spread area
- Task 2 : Measures for salinity and flood management
- Task 3 : Measures for pollution control
- Task 4 : Total elimination of aquatic weeds
- Task 5 : Measures for augmenting biodiversity in the backwaters
- Task 6 : Improving health and sanitation

**B. Expanding Sustainable livelihood Opportunities**

The tasks under expanding sustainable livelihood opportunities were again grouped under two categories, viz., Agriculture based livelihoods and Inland fisheries based livelihoods.

**B.1 Agriculture Based Livelihoods**

- Task 7 : Declaring Kuttanad as a Special Agriculture Zone
- Task 8 : Provide Infrastructure support to Paddy cultivation
- Task 9 : Enforce a crop calendar
- Task 10 : Strengthening Research and Extension
- Task 11 : Strengthening Economic Viability
- Task 12 : Coconut based enterprises and integrated farming

**B.2 Inland Fisheries based livelihoods**

- Task 13 : Action to promote fishery wealth of Vembanad Kayal
- Task 14 : Promoting Fishing infrastructure, capacity and fisherman welfare

**B.3 Water Tourism in Kuttanad and Local Ecology**

- Task 15 : Infrastructure support to facilitate responsible Tourism

The Task based implementation plan is proposed in the following sections.

**Implementation Mechanism**

Government of Kerala have set up a Kuttanad and Alappuzha prosperity council (KSPCO) Chaired by Chief Minister for providing Policy guidance and monitoring of task implementation.

A Task Implementation Committee chaired by the Chief Secretary has also constituted to leverage all concerned government institutions under single command line for task implementation.

The following additional suggestions are proposed for effective implementation.

Task Technical Committee : A Task Technical Committee has been set up under the Chairmanship of APC to discuss the technical issues in implementation as well as to spell out the administrative procedures in implementing the recommendations.

## SOILS OF KERALA

### Coastal Alluvium

These soils of marine origin are identified along the coastal plains and basin lands as a narrow strip. The soils of the coastal plains are very deep with sandy texture. These soils have high water table, the water holding capacity is poor due to the predominance of sand.

### Alluvium

These soils occur 20m below MSL and is mainly noticed close to coastal alluvium, Kuttanad and adjacent area and kole lands of Thrissur district. The soils are frequently flooded and submerged. Sandy clay loam to clay is the predominant texture and medium fertility status is the general trend.

### Kari Soils (Acid Sulphate Soils)

The major occurrence is identified at Purakkad, Vaikom, Kaduthuruthy and Thuravur. The area generally lies at or below MSL and is subject to frequent flooding and water stagnation. These soils have relatively high proportion of organic residues and severe soil and environmental limitations, which pose a threat to crop production. The soil is heavy in texture, poorly aerated and ill drained. The texture of the soil ranges from sandy clay to clay with intermediate texture of silty clay loam and clay loam. Even though these soils have medium to high general fertility status, high acidity, salinity, presence of toxic materials and submergence restrict crop selection to paddy.

### Red soils

They are localised in occurrence and are found mostly in the southern parts of Thiruvananthapuram district and in pockets in catenary sequence along the foot slopes of laterite hills and mounds. A variety of crops such as coconut, arecanut, banana, yams, pineapple, vegetables, fruit trees etc., can be grown under proper management.

### Laterite Soils

These soils mainly occur in the midlands at elevation 20 to 100m above M.S.L. as a strip between the coastal belt and hilly midupland. All these laterite soils are acidic with low water holding capacity, soil erosion and reduced effective soil volume. The laterite soil is generally suitable for most of the dryland crops. It is mainly cultivated with coconut, arecanut, banana, tapioca, vegetables, yams, pepper, pineapple, fruit trees etc.

### Hill Soils

The texture of these soils generally ranges from loam to clay loam with average gravel content of 10 to 50%. The area is suitable for all dryland crops like rubber, coconut, arecanut and fruit trees based on the lie of the land. Crops such as banana, pepper, pineapple, vegetables can be grown in foot slopes.

### Black Cotton Soils

These soils are identified in alluvial plains, terraces and undulating plains of Chittur taluk in Palakkad district in patches. These soils are very deep, black and calcareous. The texture of the soil ranges from clay loam to clay. The pH of the soil ranges from 6.5 to 8.5. A variety of crops such as coconut, sugarcane, groundnut, cotton, chilly, pulses and vegetables are grown here.

### Forest Soil

The texture of the soil ranges from sandy clay loam to clay with reddish brown to very dark brown colour. Infertility status is medium to high. Forest trees, shrubs and grasses etc. are grown here.



### SOIL TYPES IN KERALA (DISTRICT-WISE)

District	Type of soil	Details of location
Thiruvananthapuram	Fairy rich brown loam of laterite sandy loam	Middle part of the district Western coastal region
	Rich dark brown loam of granite origin	Eastern hilly parts of the district
Kollam	Sandy loam	Karunagappally and part of Kollam taluks
	Laterite soil	Kottarakkara, Kunnathur and parts of Kollam and Pathanapuram taluks
Pathanamthitta	Clay soil	Western and Eastern hilly regions
	Laterite soil	Parts of Ranni and Kozhencheri taluks
Alappuzha	Sandy loam	Karthikappally and parts of Mavelikkara
	Sandy soil	Cherthala and Ambalapuzha taluks
	Clayey loam with much acidity	Kuttanad
Kottayam Kottayam,	Laterite soil	Chengannur and part of Mavelikara taluks
	Laterite soil	Parts of Changanacherry and Kanjirappally and Mennachal taluks
	Aluvial soil	Vaikom taluk and part of Changanacherry and Kottayam taluks
Idukki	Laterite soil	Peermade and Thodupuzha taluks
	Aluvial soil	Devicolam and Udumbanchola taluks
Ernakulam	Laterite soil	Muvattupuzha, Kothamangalam and part of Aluva and Kunnathunad taluks
	Sandy loam	Parur, Kochi and Kanayannur taluks
Thrissur	Alluvial soil	Parts of Aluva and Kunnathunad taluks
	Sandy loam	Part of Mukundapuram, Thrissur and Chavakkad taluks
	Laterite soil	Eastern part of Thrissur and Western part of Thalappally taluks
	Clayey soil	Back-water area of Chavakkad and Mukundapuram taluk
Palakkad	Aluvial soil	Portions of Chavakkad taluk
	Laterite soil	Major part of the district
Malappuram	Black soil	North-Eastern part of Chittur taluk
	Laterite soil	Interior region of the district
Kozhikode	Sandy soil	Along the coastal belt on the district
	Laterite soil	Major part of the district except coastal strip
Wayanad	Sandy soil	Coastal strip
	Laterite soil	Major part of the district
Kannur	Loamy soil	Valleys in the middle portion of the district
	Laterite soil	Major part of the district except coastal strip
Kasargod	Sandy soil	coastal strip
	Laterite soil	Major part of the district except coastal strip
	Sandy soil	Coastal strip

**CULTIVATED CROPS OF KERALA**

<b>Common name</b>	<b>Malayalam name</b>	<b>Botanical name</b>	<b>Family</b>
( 1 )	( 2 )	( 3 )	( 4 )
<b>Cereals</b>			
Chama (little millet)	Chama	<i>Panicum sumatrense</i>	Poaceae
Kodo millet	Varagu	<i>Paspalum scorbiculatum</i>	Poaceae
Maize	Cholam	<i>Zea mays</i>	Poaceae
Rice	Nellu	<i>Oryza sativa</i>	Poaceae
Ragi (Finger millet)	Koovaraku	<i>Eleusine coracana</i>	Poaceae
<b>Pulses</b>			
Black gram	Uzhunnu	<i>Vigna mungo</i>	Fabaceae
Cowpea	Perumpayar	<i>Vigna unguiculata</i>	Fabaceae
Green gram	Cherupayar	<i>Vigna radiata</i>	Fabaceae
Horse gram	Muthira	<i>Macrotyloma uniflorum</i>	Fabaceae
Red gram	Thuvarappayar	<i>Cajanus cajan</i>	Fabaceae
<b>Tubers</b>			
Arrow root	Koova	<i>Maranta arundinaceae</i>	Marantaceae
Chinese Potato	Koorka	<i>Plectranthes rotundifolius</i>	Labiatae
Taro	Chembu	<i>Colocasia esculenta</i>	Araceae
Carrot	Carrot	<i>Daucus carota</i>	Apiaceae
Elephant Foot Yam	Chena	<i>Amorphophallus paeoniifolius</i>	Araceae
Potato	Urulakizhangu	<i>Solanum tuberosum</i>	Solanaceae
Radish	Mullangi	<i>Raphanus sativus</i>	Brassicaceae
Sweet potato	Cheenikizhangu	<i>Ipomoea batatas</i>	Convolvulaceae
Turnip	Seemamullangi	<i>Brassica rapa</i>	Brassicaceae
Tannia(Xanthosoma)	Palchembu	<i>Xanthosoma sagittifolium</i>	Araceae
Tapioca	Maracheeni	<i>Manihot esculenta</i>	Euphorbiaceae
GreaterYam	Kachil	<i>Dioscorea alata</i>	Dioscoreaceae
Lesser Yam	Cherukizhangu	<i>Dioscorea esculenta</i>	Dioscoreaceae
White Yam	African Kachil	<i>Dioscorea rotundata</i>	Dioscoreaceae
Yam bean	Pachyrrhizus	<i>Pachyrrhizus erosus</i>	Fabaceae
<b>Vegetables</b>			
Brinjal	Vazhuthana	<i>Solanum melongena</i>	Solanaceae
Tomato	Thakkali	<i>Lycopersicon esculentum</i>	Solanaceae
Chilli	Mulaku	<i>Capsicum annum</i>	Solanaceae
Amaranthus	Cheera	<i>Amaranthus spp.</i>	Amaranthaceae
Okra	Venda	<i>Abelmoschus esculentus</i>	Malvaceae
Bitter gourd	Paval	<i>Momordica charantia</i>	Cucurbitaceae
Bottle gourd	Churakka	<i>Lagenaria siceraria</i>	Cucurbitaceae
Snake gourd	Padavalam	<i>Trichosanthes anguina</i>	Cucurbitaceae
Ridge gourd	Peechanga	<i>Luffa acutangula</i>	Cucurbitaceae
Ash gourd	Kumbalam	<i>Benincasa hispida</i>	Cucurbitaceae

(1)	(2)	(3)	(4)
Little gourd	Koval	<i>Coccinia grandis</i>	Cucurbitaceae
Sword bean	Valaringa	<i>Canavalia gladiata</i>	Fabaceae
French bean	Beans	<i>Phaseolus vulgaris</i>	Fabaceae
Beet root	Beet root	<i>Beta vulgaris</i>	Chenopodiaceae
Cabbage	Muttakose	<i>Brassica oleracea</i> <i>var. capitata</i>	Brassicaceae
Carrot	Carrot	<i>Daucus carota</i>	Apiaceae
Cauliflower	Cauliflower	<i>Brassica oleracea</i> <i>var. botrytis</i>	Brassicaceae
Indian bean	Amara	<i>Lablab purpureus</i>	Fabaceae
Drumstick	Muringa	<i>Moringa oleifera</i>	Moringaceae
Musk melon	Thaikumbalam	<i>Cucumis melo</i>	Cucurbitaceae
Onion	Ulli	<i>Allium cepa</i>	Liliaceae
Pumpkin	Mathan	<i>Cucurbita moschata</i>	Cucurbitaceae
Red pumpkin	Vellarimathan	<i>Cucurbita maxima</i>	Cucurbitaceae
<b>Fruits</b>			
Banana	Vazha	<i>Musa spp.</i>	Musaceae
Bread fruit	Seemachakka	<i>Artocarpus altilis</i>	Moraceae
Bullock's heart	Malamunthiri	<i>Annona reticulata</i>	Annonaceae
Cashew	Kasuvandi	<i>Anacardium occidentale</i>	Anacardiaceae
Sweet-sop	Seethapazham	<i>Annona squamosa</i>	Annonaceae
Grapes	Munthiringa	<i>Vitis vinifera</i>	Vitaceae
Guava	Perakka	<i>Psidium guajava</i>	Myrtaceae
Jack	Chakka	<i>Artocarpus heterophyllus</i>	Moraceae
Jujube	Elantha	<i>Zizyphus jujuba</i>	Rhamnaceae
Lemon	Naranga	<i>Citrus lemon</i>	Rutaceae
Lime	Cherunaranga	<i>Citrus aurantifolia</i>	Rutaceae
Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
Mangosteen	Mangosteen	<i>Garcinia mangostana</i>	Clusiaceae
Papaya	Pappakka	<i>Carica papaya</i>	Caricaceae
Pineapple	Kaithachakka	<i>Ananas comosus</i>	Bromeliaceae
Pomegranate	Mathalanaranga	<i>Punica granatum</i>	Punicaceae
Sapota	Sapota	<i>Achras sapota</i>	Sapotaceae
Mandarin	Orange	<i>Citrus reticulata</i>	Rutaceae
Pomelo	Bamplimas	<i>Citrus decumana</i>	Rutaceae
<b>Condiments &amp; Spices</b>			
Chilli	Mulaku	<i>Capsicum annum</i>	Solanaceae
Turmeric	Manjal	<i>Curcuma domestica</i>	Zingiberaceae
Coriander	Kothamalli	<i>Coriandrum sativum</i>	Apiaceae
Indian mustard	Kaduku	<i>Brassica juncea</i>	Brassicaceae
Cumin	Jeerakam	<i>Cuminum cyminum</i>	Apiaceae

(1)	(2)	(3)	(4)
Pepper	Kurumulaku	<i>Piper nigrum</i>	Piperaceae
Garlic	Veluthulli	<i>Allium sativum</i>	Liliaceae
Ginger	Inchi	<i>Zingiber officinale</i>	Zingiberaceae
Cardamom	Elam	<i>Elettaria cardamomum</i>	Zingiberaceae
Long Pepper	Thippali	<i>Piper longum</i>	Piperaceae
Nutmeg	Jathika	<i>Myristica fragrans</i>	Myristicaceae
Cinnamon	Karuvapatta	<i>Cinnamomum zeylanicum</i>	Lauraceae
Clove	Grambu	<i>Syzygium aromaticum</i>	Myrtaceae
Cinchona	Cinchona	<i>Cinchona officinalis</i>	Rubiaceae
Allspice	Allspice	<i>Pimenta dioica</i>	Myrtaceae
Fennel	Perumjeerakam	<i>Foeniculum vulgare</i>	Apiaceae
<b>Oil Seeds</b>			
Coconut	Thenga	<i>Cocos nucifera</i>	Arecaceae
Sesamum	Ellu	<i>Sesamum indicum</i>	Pedaliaceae
Groundnut	Nilakkadala	<i>Arachis hypogaea</i>	Fabaceae
Indian Mustard	Kaduku	<i>Brassica juncea</i> <i>spp. juncea</i>	Brassicaceae
Castor	Avanakku	<i>Ricinus communis</i>	Euphorbiaceae
Oil Palm	Ennappana	<i>Elaeis guineensis</i>	Arecaceae
<b>Beverages</b>			
Coffee	Kappi	<i>Coffea spp.</i>	Rubiaceae
Tea	Theyila	<i>Camellia sinensis</i>	Theaceae
Cocoa	Cocoa	<i>Theobroma cacao</i>	Sterculiaceae
<b>Green Manure Crops</b>			
Glyricidia	Seemakonna	<i>Gliricidia maculata</i>	Fabaceae
Crotalaria(Striped)	Kilukki	<i>Crotalaria mucronata</i>	Fabaceae
Sunhemp	Kattuchanambu	<i>Crotalaria juncea</i>	Fabaceae
Calapagonium	Calapagonium	<i>Calapogonium muconoides</i>	Fabaceae
Kudzuvine	Kudzu payer	<i>Pueraria javanica</i>	Fabaceae
Wild indigo	Kozhinji	<i>Tephrosia purpurea</i>	Fabaceae
<b>Fodder Crops</b>			
Bermuda	Karuka	<i>Cynodon dactylon</i>	Poaceae
Napier	Napier	<i>Pennisetum purpureum</i>	Poaceae
Guinea	Kuthirappullu	<i>Panicum maximum</i>	Poaceae
Para	Parapullu	<i>Brachiaria mutica</i>	Poaceae
Tropical kudzu	Kudzu	<i>Pueraria phaseoloides</i>	Fabaceae
<b>Other Crops</b>			
Tobacco	Pukayila	<i>Nicotiana tabacum</i>	Solanaceae
Betel vine	Vettila	<i>Piper betle</i>	Piperaceae
Arecanut	Kamuku	<i>Areca catechu</i>	Arecaceae
Para rubber	Rubber	<i>Hevea brasiliensis</i>	Euphorbiaceae
Sugarcane	Karimbu	<i>Saccharum officinarum</i>	Poaceae

(1)	(2)	(3)	(4)
<b>Trees</b>			
Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
Ebony	Karimaram	<i>Diospyros ebenum</i>	Ebenaceae
Jungle jack/Aini	Anjili	<i>Artocarpus hirsutus</i>	Moraceae
Poon	Kattupunna	<i>Calophyllum polyanthum</i>	Clusiaceae
Tree of Heaven	Perumaram	<i>Ailanthus excelsa</i>	Simaroubaceae
Sain/Laurel	Karimaruthu	<i>Terminalia erenulata</i>	Combretaceae
Kindal	Vellamaruthu	<i>T.paniculata</i>	Combretaceae
Gurjun	Vella Ayani	<i>Dipterocarpus indicus</i>	Dipterocarpaceae
Iron wood tree	Kadamaram	<i>Xylia zylocarpa</i>	Mimosaceae
Venteak	Venthekku	<i>Lagerstroemia microcarpa</i>	Lythraceae
Siris	Vaka	<i>Albizia lebbek</i>	Fabaceae
Yellow teak	Manja Kadambu	<i>Haldina cordifolia</i>	Rubiaceae
Dita bark	Yezhilam pala	<i>Alstonia scholaris</i>	Apocynaceae
Ekadania	Mulluvenga	<i>Bridelia squamosa</i>	Euphorbiaceae
Mahogany	Mahagany	<i>Swietenia mahogani</i>	Meliaceae
Indian rose wood	Eetty	<i>Dalbergia latifolia</i>	Fabaceae
Jack	Plavu	<i>Artocarpus heterophyllus</i>	Moraceae
Bead tree	Manjadi	<i>Adenanthera pavonina</i>	Mimosaceae
<b>Medicinal Plants</b>			
Black cutch	Karingali	<i>Acacia catachu</i>	Mimosaceae
Asparagus	Sathavari	<i>Asparagus racemosus varjavanicus</i>	Liliaceae
Brahmi	Neerbrahmi	<i>Bacopa monnieri</i>	Scrophulariaceae
Aparjit	Sankupushpam	<i>Clitoria ternatea</i>	Fabaceae
Indian borage	Njavara/Panikoorka	<i>Coleus amboinicus</i>	Lamiaceae
Nut grass	Muthanga	<i>Cyperus rotundus</i>	Cyperaceae
Sadovani	Velipparuthy	<i>Pergularia daemia</i>	Asclepiadaceae
Sarivan	Orila	<i>Desmodium gangeticum</i>	Fabaceae
Indian sarasaparilla	Narunandi	<i>Hemidesmus indicus</i>	Asclepiadaceae
Pennywort	Kudangal	<i>Centella asiatica</i>	Apiaceae
Kachura	Kacholam	<i>Kaempferia galanga</i>	Zingiberaceae
Neem	Veppu	<i>Azadirachta indica</i>	Meliaceae
Holybasil	Thulasi	<i>Ocimum sanctum</i>	Lamiaceae
Jaramala	Keezharnelli	<i>Phyllanthus fraternus</i>	Euphorbiaceae
Long Pepper	Thippali	<i>Piper longum</i>	Piperaceae
	Moovila	<i>Pseudarthria viscida</i>	Fabaceae
Rauwolfia	Sarpagandhi	<i>Rauwolfia serpentina</i>	Apocynaceae
Garden Rue	Sathappu/Arutha	<i>Ruta graveolens</i>	Rutaceae
Sida	Kurumthotti	<i>Sida rhombifolia</i>	Malvaceae
Gulancha (Hindi Name)	Chittamaruthu	<i>Tinospora cordifolia</i>	Menispermaceae
Antamul (Hindi Name)	Vallippala	<i>Tylophora indica</i>	Asclepiadaceae

(1)	(2)	(3)	(4)
Khas-khas	Ramacham	<i>Vetiveria zizanioides</i>	Poaceae
Nirgandi (Hindi Name)	Karinochi	<i>Vitex negundo</i>	Verbenaceae
Asgand (Hindi Name)	Amukuram	<i>Withania somnifera</i>	Solanaceae
Balloonvine	Uzhinja	<i>Cardiospermum halicacabum</i>	Sapindaceae

#### VARIETIES RELEASED BY KERALA AGRICULTURAL UNIVERSITY / ICAR INSTITUTES

##### Rice Varieties tolerant to different biotic and abiotic stresses

Trait	Varieites possessing the trait
Tolerance to BPH	Triveni, Matta triveni, Aruna, Remanika, Revathy, Krishnanjana, Bharathy, Jayathi, Aiswarya, Bhadra, Asha, Pavizham, Kanakam, Renjini, Pavithra, Panjami, Uma, Karishma, Nila.
Tolerance to Gall Midge	Pavithra, Kanjana, Uma, Panchami
Tolerance to Leaf folder	Ahalya, Jayathi, Reshmi
Tolerance to Stem borer	Swarnaprabha, Kanchana, Aruna, Dhanu
Tolerance to GLH	Jayathi
Tolerance to Blast	Swarnaprabha, Kanchana, Kanakam, Jayathi, Renjini, Aiswarya, Neeraja
Tolerance to Sheath blight	Kanchana, Karthika, Aiswarya, Dhanu
Tolerance to Drought	PTB 28, PTB 29, PTB 30
Tolerance to moisture stress	Harsha, Chingam
Tolerance to Flood	Kottarakkara I
Tolerance to Salinity	Vyttila 1, Vyttila 2, Vyttila 3, Vyttila 4, Vyttila 5
Tolerance to Water logging	Mangala Mashuri
Tolerance to Acidity, iron toxicity and Sulphide injury	Karishma and Krishnanjana
Tolerance to Iron toxicity & shallow Flooding	Mangala Mashuri, Karuna
Good Grain quality	Ahalya
High protein content	PTB 23

#### VARIETIES OF OTHER CROPS RELEASED

##### COCONUT

Hybrid	Nut yield per palm/year(No.)	Copra content/nut	Copra yield/palm/year (kg)
Lakshaganga	108.3	194	21.06
Anandaganga	95.2	216	20.56
Keraganga	100.2	201	20.14
Kerasree	140.0	216	30.24
Kerasowbhagya	130.0	195	25.35

## SPICES

### a. Pepper

Variety	Special features	Average yield (Kg/ha)
Panniyur 2	Tolerate shade	2570
Panniyur 3	Long spike, bold berries, prefers open condition	1953
Panniyur 4	Tolerates adverse climatic condition	1277
Panniyur 5	Tolerate adverse climatic condition	2352
Panniyur 6	Stable and regular yield, tolerates partial shade	2127
Panniyur 7	Stable and regular yield, tolerates partial shade	1410
Panchami	High yielding variety with excellent fruitset	2828
Sreekara	Adaptable to various climatic conditions	2677

### b. Cardamom

Variety	Special features	Average yield (Kg/ha)
PV1	Earliness in bearing, suited to all cardamom growing areas of Kerala, Karnataka and Tamil Nadu	380
PV2	Long bold capsules. Field tolerant to stem borer and relatively tolerant to thrips. More than 80% capsules over 7 mm.	916

### c. Turmeric

Variety	Average dry yield(t/ha.)	Curcumin
Kanthi	7.34	7.18
Sobha	5.74	7.39
Sona	4.02	7.11
Varna	4.16	7.87

### d. Cinnamon - Sugandhini, Nithyasree, Navasree

#### CASHEW

Variety	Mean yield (kg/tree/year)
Anakkayam I	12.00
Madakkathara I	13.80
Kanaka	12.8
Dhana	10.66
Dharasree	15.02
Priyanka	16.90

Amrutha	18.35
Anagha	13.73
Akshaya	11.78
Madakkathara 2	17.00
Sulabha	21.90
Damodar	13.36
Raghav	14.65
Poornima	14.08
Sree	23.78

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<b>SUGARCANE</b>	:	Madhuri, Thirumadhuram, Madhurima, Madhumathi
<b>VEGETABLES</b>		
Amaranthus		
Red varieties	:	Kannara local, Arun, Krishnasree
Green varieties	:	Mohini, Renusree
Okra		
Green varieties	:	Kiran, Salkeerthi, Susthira
Red varieties	:	Aruna
Bittergourd	:	Priya, Preethi, Priyanka
Snakegourd	:	Kaumudi, Baby, Manusree, TA-19, TA-23
Cucumber	:	Mudicode, Arunima, Soubhagya
Pumpkin	:	Ambili, Suvarna, Saras
Ashgourd	:	KAU local, Indu
Brinjal	:	Surya, Swetha, Haritha, Neelima
Chilli	:	Jwalasakhi, Jwalamukhi, Jwala, Ujwala, Anugraha, Vellayani Athulya, Samrudhi
Tomato	:	Sakthi, Mukthi, Anagha, Vellayani Vijai
Vegetable cowpea	:	KMV-1, Malika, Sharika, Vyjayanthi, Anaswara, Varun, Kairali, Bhagyalakshmi, Lola, Vellayani Jyothika
Winged Bean	:	Revathy
Ridge gourd	:	Haritham, Deepthi
<b>OTHER CROPS</b>		
Cocoa	:	CCRP1, CCRP2, CCRP3, CCRP4, CCRP5, CCRP6, CCRP7, CCRP8, CCRP9, CCRP10
Sesamum	:	Kayamkulam I, Thilothama, Soma, Surya, Thilak, Thilathara, Thilarani
Ground nut	:	Sneha, Snighda
Cowpea	:	Kanakamony, Krishnamony, Pournami, Shubhra, Hridya, Sreya
Black gram	:	Syama, Sumanjana
Lemongrass	:	OD 19, (Sugandhi)
Palmarosa	:	ODP 1, ODP 2
Vetiver	:	ODV 3
Thippali	:	Viswam
Cinnamon	:	ODC 130
Kacholam	:	Kasthuri, Rajani
Guinea Grass	:	Haritha, Marathakom
<b>TUBER CROPS</b>		



Tapioca	:	H97, H165, H226, Kalpaka, Nidhi, Vellayani Hraswa, Sree Jaya, Sree Vijaya, Sree Prakash, Sree Rekha, Sree Prabha, Sree Padmanabha
Sweet Potato	:	H41, H42, Kanjangad, Sree Arun, Sree Varun, Sree Kanaka, Sree Bhadra, Sree Rethna, Varsha, Sree Vardhini, Sree Nandini
Greater Yam	:	Indu, Sree Keerthi, Sree Roopa, Sree Karthika, Sree Shilpa
Chinese Potato	:	Nidhi, Sree Dhara, Suphala
Taro	:	Sree Reshmi, Sree Kiron, Sree Pallari
Elephant Foot Yam	:	Sree Padma, Sree Athira, Gajendra
Lesser Yam	:	Sree Latha, Sree Kala
White Yam	:	Sree Priya, Sree Subhra, Sree Dhanya
<b>MUSHROOM</b>	:	Ananthan

### MANURES & FERTILIZERS

#### (i) Nutrients in Organic Manures

	<i>N</i>	<i>P<sub>2</sub>O<sub>5</sub></i>	<i>K<sub>2</sub>O</i>
Neem cake	5.0	1.0	1.5
Coconut cake	3.0	1.9	1.8
Groundnut cake	7.0	1.5	1.5
Gingelly cake	6.2	2.0	1.2
Castor cake	4.3	2.0	1.3
Mahua cake	2.5	0.8	1.8
Farm yard manure	1	0.5	1
Compost	0.5	0.4	0.8
Cowdung (fresh)	1.5	0.3	0.2
Biogas slurry (cowdung based)	1.6 - 1.8	1.1 - 2.0	0.8 - 1.2
Sheep manure	0.8 - 1.6	0.3 - 0.4	0.3 - 0.4
Poultry manure	1.2 - 1.8	1.4 - 1.8	0.8 - 0.9
Bone meal	3.5	21	--
Fish meal	4.1	3.9	0.3 - 1.5
Meat meal	11	1.5	0.6
Blood (dried)	11.5	--	0.6
Sunhemp	2.6	0.5	2.0
Daincha	3.3	0.7	1.30
Kolinji	3.20	0.3	1.30
Sesbania	2.7	0.5	2.2
Gliricidia	2.90	0.5	2.8
Paddy straw	0.36	0.08	0.71
Household ash	0.5 - 1.9	1.6 - 4.2	2.3 - 12.00
Coirpith Compost	1.26	0.06	1.20

. Composition of organic manures vary widely.

**(ii) Nutrients in common fertilizers**

Name of Fertilizer	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Ammonium Sulphate	20.6	--	--
Ammonium Nitrate	33.5	--	--
Diammonium Phosphate	18.0	46.0	--
Ammonium Phosphate Sulphate	16.0	20.0	--
Calcium Ammonium Nitrate	25.0	--	--
Urea	46.0	--	--
Super Phosphate	--	16.0	--
Rock Phosphate	--	28.4	--
Mussuriphos	--	18-20	--
Muriate of Potash	--	--	60

**(iii) Quantities of fertilizers required to supply specified doses of nutrients**

Rate of application (kg / ha)	Ammonium sulphate (20% N)	Urea (46% N)	Super Phosphate (18% P <sub>2</sub> O <sub>5</sub> )	Muriate of Potash (60% K <sub>2</sub> O)
10	50	22	56	17
20	100	43	111	33
30	150	65	167	50
40	200	87	222	67
50	250	109	278	83
60	300	130	333	100
70	350	152	389	117
80	400	174	444	133
90	450	196	500	150
100	500	217	556	167

**FERTILIZER RECOMMENDATION FOR MAJOR CROPS**

	N	P	K
<b>1. PADDY (kg/ha)</b>			
<b>Upland (Modan)</b>			
PTB 28, 29 and 30	40	20	30
High-yielding short duration varieties	60	30	30
<b>Wet land (All regions)</b>			
High-yielding short duration varieties	70	35	35
High-yielding medium duration varieties	90	45	45
Local varieties	40	20	20
H4	70	45	45
Mashuri	50	25	25

## 2. COCONUT (Adult palm) kg/palm/annum

### 1. General recommendation

(a) Average management	0.34	0.17	0.68
(b) Good Management	0.50	0.32	1.20

### 2. For reclaimed clayey soils (as in Kuttanad)

	0.25	0.35	0.90
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### 3. Red Loam Soils (Southern Kerala)

	0.68	0.23	0.90
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### 4. Hybrid and high yielding palm

(a) For irrigated areas	1.00	0.50	2.00
(b) Rainfed	0.50	0.32	1.20

## 3. RUBBER

### From 1st year to 4th year :- 10:10:4:1.5 NPK Mg mixture at the following rates:

3 <sup>rd</sup> Month	225g / plant
9 <sup>th</sup> Month	450g / plant
15 <sup>th</sup> Month	450g / plant
21 <sup>st</sup> Month	550g / plant
27 <sup>th</sup> Month	550g / plant
33 <sup>rd</sup> Month	450g / plant
39 <sup>th</sup> Month	450g / plant

### From 5th year till tapping begins

12:12:12 NPK Mixture @ 125 kg / ha during April - May and September - October

(Where mulching was practiced during initial years)

15:10:6 NPK mixture @ 200 kg / ha during April - May and September - October

(Where mulching was not practiced during initial years)

### Mature Rubber under tapping

10:10:10 NPK Mixture @ 300 kg / ha or 900 g / plant during April - May as single dose or in 2 split doses during April - May and Sep - Oct

or 15:15:15 NPK Mixture @ 200 kg / ha

or 17:17:17 NPK Mixture @ 175 kg / ha

or 19:19:19 NPK Mixture @ 160 kg / ha

## 4. ARECANUT

Adult palm (gram per year)	100	40	140
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## 5. TAPIOCA (kg per hectare)

Improved	100	100	100
Local	50	50	50

## 6. SWEET POTATO ( kg / ha)

	75	50	75
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## 7. SESAMUM ( kg / ha.)

	30	15	30
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## 8. GROUNDNUT ( kg / ha)

	10	75	75
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## 9. BANANA (g/plant)

Nendran (irrigated)	190	115	300
Palayamkoda (Rainfed)	100	200	400
Other varieties according to soil fertility	160-200	160-200	320-400

10. <b>PINEAPPLE</b> -	(g/plant/year)	8	4	8
	(kg/ha/year)	320	160	320
11. <b>MANGO</b>	(g/tree/year) for trees over 10 years	500	360	750
12. <b>SUGARCANE</b>	(kg/ha)			
	Pandalam and Thiruvalla area	165	82.5	82.5
	Chittoor area	225	75	75
	Newly-cleared forest area	115	75	90
13. <b>PEPPER</b>	(g/vine/year)	50	50	150
14. <b>GINGER</b>	(kg/ha)	75	50	50
15. <b>TURMERIC</b>	(kg/ha)	30	30	60
16. <b>NUTMEG</b>	(g/tree/year) from 15 <sup>th</sup> year onwards	500	250	1000
17. <b>CLOVE</b>	(g/tree/year) from 15 <sup>th</sup> year onwards	300	250	750
18. <b>CARDAMOM</b>	(kg/ha)	75	75	150
19. <b>CASHEW</b>	(g/tree/year)	750	325	750
20. <b>COCOA</b>	(g/plant/year)			
	For plants yielding less than			
	50 fruits per year	100	40	140
	For plants yielding more than 50 fruits	200	80	280
21. <b>COLOCASIA</b>	(kg/ha)	80	25	100
22. <b>AMORPHOPHALLUS</b>	(kg/ha)	100	50	150
23. <b>DIOSCOREA</b>	(kg/ha)	80	60	80

Source: Package of Practices Recommendation, 'Crops' - 2007, KAU

### Vermicompost

Vermi-technology is a process by which all types of biodegradable wastes such as farm wastes, kitchen wastes, market wastes, bio-wastes of agro-based industries, livestock wastes etc. are converted to nutrient rich vermicompost by using earthworms as biological agents. Vermicompost contains major and minor nutrients in plant-available forms, enzymes, vitamins and plant growth hormones. *Eudrillus eugineae* has been identified as the best species of earth-worm for vermi-technology under Kerala conditions.

Vermicomposting of farm wastes: Pits of size 2.5m length, 1m breadth and 0.3m depth are taken in thatched sheds with sides left open. The bottom and sides of the pit are made hard by compacting with a wooden mallet. At the bottom of the pit, a layer of coconut husk is spread with the concave side upward to ensure drainage of excess water and for proper aeration. The husk is moistened and above this, biowaste mixed with cowdung in the ratio of 8:1 is spread up to a height of 30cm above the ground level and water is sprinkled daily. After the partial decomposition of wastes for 7 to 10 days, the worms are introduced @ 500 to 1000 numbers per pit. The pit is covered with coconut fronds. Moisture is maintained at 40 to 50 %. When the compost is ready, it is removed from the pit along with the worms and heaped in shade with ample light. The vermicompost produced has an average nutrient status of 1.5% N, 0.4% P<sub>2</sub>O<sub>5</sub> and 1.8% K<sub>2</sub>O with pH ranging from 7.0 to 8.0.

## Coir Pith Composting

Select a shaded place of 5x3m dimension and level it after removing weeds. First spread 100 kg coirpith uniformly. Spread 300g (one bottle or cover) of *Pleurotus* spawn on this and cover this with a second layer of 100 kg coirpith. On the surface of the second layer, spread 1 kg urea uniformly. Repeat this sandwiching process of one layer of coirpith with spawn followed by another layer of coirpith with urea up to 1m height. Sprinkle water if necessary to keep the heap moist. Allow the heap to decompose for one month.

The coirpith is converted into good manure after 30-40 days and the lignin content is reduced from 30% to 40%. Another significant change is the lowering down of C:N ratio from 112:1 to 24:1. This coirpith compost contains macronutrients as well as micronutrients. It has the unique property of absorbing and retaining moisture to about 500-600 %. It improves the water infiltration rate and hydraulic conductivity of soil.

## BIO-FERTILIZERS

Some of the commonly used bio-fertilizers are

### 1. Rhizobium (*Bradyrhizobium* and *Azorhizobium*)

It induces better root nodulation and stem nodulation (*Azorhizobium*) in inoculated plants and thereby brings down the requirement of nitrogen fertilizer for the cultivation of pulses, oil seeds and legume green manures. Method of application is seed treatment.

### 2. Azotobacter

Suitable only for upland crops like vegetables, tapioca, plantation and orchard crops.

### 3. Azospirillum

It is suitable for both upland and wetland conditions. It induces better root formation in inoculated plants. Recommended for root induction in polybag-raised seedlings of plantation and orchard crops. Method of application are seed treatment, seedling root dip and soil application.

### 4. Blue green algae (BGA)

Mainly recommended for wetland rice cultivation. Not feasible in acidic soils with pH below 6.0. Applied by direct broadcasting in the rice fields @ 10 kg/ha one week after transplanting the seedlings.

### 5. Azolla

It is suitable for wetland rice cultivation. The required quantity of azolla will have to be raised in the farmers' field itself. Method of Application : apply @ 10t/ha before transplanting the rice seedlings at the time of ploughing.

### 6. Phosphate solubilising bacteria and fungi

Recommended mainly for upland crops raised in neutral and slightly alkaline soils.

Enables the efficient utilization of cheaper sources of phosphatic fertilizers such as rock phosphate by crop plants in neutral and alkaline soils. Method of application : Seed treatment and direct application.

#### **7. Vesicular Arbuscular Mycorrhiza (VAM/AM)**

Vesicular arbuscular mycorrhiza is mostly recommended for upland especially for raising container and tissue culture plantlets and transplanted crops. Also induces better resistance against certain soil borne plant pathogens. It is given as soil application.

### **APPLICATION TECHNIQUES OF BIOFERTILIZERS**

#### **1. Seed treatment**

Five hundred grams of commercially available inoculum will be required for treatment of seeds for one hectare area. For this, thick slurry of the carrier-based inoculum is initially prepared by mixing 500 g of the inoculum in 1.25 litres of water. The stickiness of the biofertilizer on seed surface can be significantly improved by using 10% jaggery solution or 5% sugar solution supplemented with 40% boiled and cooled gum arabic solution or rice-gruel water. The required quantity of seed material is then gently mixed with this slurry without damaging the seed coat. The treated seeds are spread evenly over a gunny bag and dried in shade and sown immediately in moist soil. Under no circumstances, the treated seeds are exposed to direct sunlight for longer period of time since the UV rays of solar radiation will reduce significantly the population of inoculated bacteria on seed surface.

#### **2. Seedling treatment**

This method of application is mainly recommended for transplanted crops. In this procedure, the roots of seedling to be transplanted are dipped in loose water slurry of the biofertilizer (500 g in 2.5 litres of water) for 20 minutes, prior to transplanting.

#### **3. Soil application**

Soil application is generally recommended for all types of biofertilizers except Rhizobium, Bradyrhizobium and Azorhizobium. The method is to apply the biofertilizer after mixing with dried FYM, compost or vermicompost @ 1:25. For crops of six months duration, the recommended dose is 1-2 kg/ha. This can be increased to 2-4 kg/ha for crops of more than six months duration. For perennial crops, 10 to 25 g of the biofertilizer is to be applied in the root zone during the first year and 25 to 50 g during subsequent years. This can be done at the time of sowing, transplanting or during intercultivation.

*Source : Package of practices recommendations ; 'Crops'-2007; KAU.*

**SPACING RECOMMENDATIONS AND PLANT POPULATION OF IMPORTANT  
CROPS IN KERALA**

		Spacing
1. Rice - Virippu	Medium duration	- 20 x 15 cm
	Short duration	- 15 x 10 cm
Mundakan	Medium duration	- 20 x 10 cm
	Short duration	- 15 x 10 cm
Puncha	Medium duration	- 20 x 10 cm
	Short duration	- 15 x 10 cm
2. Ragi		- 25 x 15 cm
3. Maize		- 60 x 25 cm
4. Sorghum		- 45 x 15 cm
5. Cowpea		
a. for grain & dual purpose		
i. Dibbling		- 25 x 15 cm
b. for vegetable type		
i. Bush		- 30 x 15 cm
ii. Trailing		- 2 x 2 cm
7. French bean		- 30 x 20
8. Green pea		- 15-20 x 10 cm
9. Amorphophallus		- 90 x 90 cm
10. Colocasia		- 60 x 45 cm
11. Greater yam (Kachil)		- 1 m x 1 m
12. Lesser yam (Nanakizhangu)		- 75 x 75 cm
13. Sweet potato	Ridges	- 60 x 15-20 cm
	Mounts	- 75 x 75 cm
14. Tapioca	Branching type	- 90 x 90 cm
	Non branching type	- 75 x 75 cm
15. Cashew	1. Poor soil	- 7.5 x 7.5 m
	2. Rich & deep soil & Sandy coastal area	- 10 x 10 m
16. Sugarcane	Short duration	- 75 x 75 cm
	Medium duration	- 90 x 90 cm
17. Coconut	Triangular method	- 7.6 m
	Square	- 7.6 to 9 m
	Single hedge	- 9 x 5 m
	Double hedge	- 5 x 5 m in rows 9m between pairs of rows.
18. Groundnut		- 15 x 15 cm
19. Oil palm		- 9 m
20. Cardamom		- 1.8 m x 0.60 m
21. Cinnamon		- 2 x 2 m

22. Clove		- 6 x 6 m
23. Vanilla		- 1.8 x 2.7 m
24. Ginger		- 20 x 20 cm to 25 x 25 cm
25. Mango Ginger		- 25 x 30 cm
26. Nutmeg		- 8 x 8
27. Pepper		- 3 x 3 m
28. Turmeric		- 25 x 25 cm
29. Kudampuli		
a. Graft		- 4 x 4 m
b. Seedling		- 7 x 7 m
30. Tamarind		- 10 x 10 m
31. Arecanut		- 2.7 x 2.7 m
32. Coffee		
a. Tall Arabica		- 2.1 x 2.1 m
b. Semi dwarf		- 1.8 x 1.8 m
c. Dwarf		- 1.5 x 1.5 m
d. Hybrid		- 2.5 x 2.5 m
e. Robusta		- 3 x 3 m
33. Tea		
a. Up & down		- 1.2 x 1.2 m
b. Contour planting	Single hedge	- 1.2 x 0.75 m
c. Contour planting	Double hedge	- 1.35 x 0.75 x 0.75 m
34. Tobacco		- 85 x 85 cm
35. Okra (Bindhi)		- 60 x 45 cm
36. Coleus		- 30 x 15 cm
37. Bitter gourd		- 2 x 2 m
38. Snake gourd		- 2 x 2 m
39. Cucumber		- 2 x 1.5 m
40. Water melon		- 3 x 2 m
41. Bottle gourd		- 3 x 3 m
42. Pumpkin		- 4.5 x 2 m
43. Ash gourd		- 4.5 x 2 m
44. Brinjal		
a. Less spreading varieties		- 60 x 60 cm
b. Spreading varieties		- 75 - 90 x 60 cm
45. Chilli		
a. Less spreading varieties		- 45 x 45 cm
b. Spreading varieties		- 75 x 45 - 60 cm
46. Tomato		- 60 x 60 cm
47. Cabbage		- 45 x 45 cm
48. Cauliflower		- 60 x 45 cm
49. Carrot		- 45 x 10 cm



50. Beet root	- 45 x 15-20 cm
51. Radish	- 45 x 10 cm
52. Potato	- 50-60 x 15-20 cm
53. Garlic	- 15 x 8 cm
54. Winged bean	- 1.25 x 0.5 m
55. Dolichos bean	
a. Pole varieties	- 1.25 x 0.75 m
b. Bush varieties	- 60 x 15 cm
56. Cluster bean	- 45-60 x 20-30 cm
57. Sword bean	
a. Pole type varieties	- 4 x 3 m
b. Bush type varieties	- 60 x 60 cm
58. Clove bean	- 100 x 60 cm
59. Little gourd	- 4 x 3 m
60. Smooth gourd	- 2 x 2 m
61. Ridge gourd	- 2 x 2 m
62. Bell pepper	- 60 x 30 cm
63. Drumstick	- 4 x 4 m
64. Indian Spinach	- 1 x 0.6 m
65. Water leaf	- 30 x 10 cm
66. Curry leaf	- 4 x 4 m
67. Banana	- 2 x 2 m
68. Indian Gooseberry	- 8 x 8 m
69. Jack	- 12-15 m
70. Mandarin Orange	- 7 - 8 m
71. Mango	- 9 m
72. Papaya	- 2 x 2 m
73. Pineapple	
a. Kew	- 70 x 30 cm
b. Mauritius	- 45 x 30 cm
74. Sapota	- 7 - 8 m
75. West Indian Cherry	- 6 m

#### SEED RATE FOR IMPORTANT CROPS OF KERALA

1. Rice	Transplanting	- 60 - 85 kg/ha
	Broad casting	- 80 - 100 kg/ha
	Dibbling	- 80 - 90 kg/ha
2. Maize		- 20 kg/ha
3. Ragi	Direct sown	- 5 kg/ha
	Transplanted crop	- 4-5 kg/ha
4. Sorghum		- 12-15 kg/ha
5. Blackgram -	Pure crop	- 20 kg/ha
	Mixed crop	- 6 kg/ha

6. Cowpea		
1. For vegetable type		
a. Bush		- 20 - 25 kg/ha
b. Trailing		- 4 - 5 kg/ha
2. For grain and dual purpose		
a. Broadcasting		- 60 - 65 kg/ha
b. Dibbling		- 50 - 60 kg/ha
7. Green gram		
	Pure crop	- 20 - 25 kg/ha
	Mixed crop	- 6 kg/ha
8. Green pea		- 60 kg/ha
9. Horse gram		- 25 - 30 kg/ha
10. Red gram		
	Pure crop	- 15 - 20 kg/ha
	Mixed crop	- 6 - 7 kg/ha
11. Amorphophallus		- 9-12 tonnes/ha
12. Colocasia		- 800-1200 kg/ha
13. Greater yam (Kachil)		- 3000-3700 kg/ha
14. Lesser yam (Nanakizhangu)		- 1800 - 2700 kg/ha
15. Sweet potato		- 80 kg tubers/ha
16. Tapioca		- 2000 stems/ha
17. Rubber		- 450 - 500 plants/ha
18. Ground nut		
	Pure crop	- 100 kg kernels/ha
	Inter crop in coconut	- 80 kg kernel/ha
	Inter crop in Tapioca	- 40 - 50 kg kernel/ha
19. Sesame		- 4 - 5 kg/ha
20. Mango ginger		- 1500 kg/ha
21. Ginger		- 1500 kg/ha
22. Turmeric		- 2000 - 2500 kg/ha
23. Betel vine		- 20000 to 25000 cuttings/ha
24. Okra		- 7 - 8.5 kg/ha
25. Bitter gourd		- 5 - 6 kg/ha
26. Coleus		- 75-100 kg tubers/ha
27. Snake gourd		- 3 - 4 kg/ha
28. Cucumber		- 0.5 - 0.75 kg/ha
29. Watmelon		- 1 - 1.5 kg/ha
30. Bottle gourd		- 3 - 4 kg/ha
31. Pumpkin		- 1 - 1.5 kg/ha
32. Ash gourd		- 0.75 - 1 kg/ha
33. Brinjal		- 370 - 500 g/ha
34. Chilli		- 1 kg/ha

35. Tomato	- 400 g/ha
36. Cabbage	- 500 - 750 g/ha
37. Cauliflower	- 600 - 750 g/ha
38. Carrot	- 5 - 6 kg/ha
39. Beet root	- 7 - 8 kg/ha
40. Radish	- 7 - 8 kg/ha
41. Potato	- 1000 - 2000 kg seed tuber/ha
42. Garlic	- 500 kg of cloves/ha
43. Winged bean	- 15 - 20 kg/ha
44. Cluster bean	- 10 -12 kg/ha
45. Clove bean	- 6 - 7 kg/ha
46. Smooth gourd	- 2.5 - 3 kg/ha
47. Ridge gourd	- 2.5 - 3 kg/ha
48. Bell pepper	- 400 - 600 g/ha

#### CONVERSION RATES BETWEEN RAW MATERIALS AND PROCESSED PRODUCTS

Paddy	Rice	Cleaned 2/3 by weight of paddy
Groundnut	Kernels to nuts in shell	70 percent
	Oil to nuts in shell	28 percent
	Oil to Kernels crushed	40 percent
	Cake to Kernels crushed	60 percent
Sesamum	Oil to seeds crushed	40 percent
	Cake to seeds crushed	60 percent
Coconut	Copra to nuts	6,773 nuts gives one tonne of copra (average), presently it is 7250-7500 nuts due to mite attack
	Cake to copra	38 percent
Pepper	Green to dry	21-39 percent by weight
Sugarcane	Gur from cane	10 percent
	Crystal sugar from gur	62.4 percent
	Crystal sugar from cane	9.9 percent
	Molasses from cane	3.5 percent
Cashew	Cashew Kernel	25 percent of nuts
Arecanut	Husked Champan to unhusked	35 percent by weight
Supari	(Processed tender nut to unhusked champan)	12 percent
	Starch	28-30 percent on the weight of fresh tubers
Turmeric	Cured to raw	
	(Dry 17-25% of the raw stuff)	16-20 percent of the weight
Ginger	Dry Ginger	21-30 percent by weight
Cocoa	Pod to wet beans	40 percent by weight
	Wet beans to dried beans	35-40 percent by weight

Coffee	Robusta-Berries to clean coffee	4.5 to 3.6:1
	Wet beans to dried beans	5.0 to 3.3:1
Cardamom	Green to dry	25-35 percent
Oil Palm	Palm Oil	20% by weight of Bunch
Soyabean seed	Oil to soyabean seed crushed	18 percent
	Meal to soyabean seed crushed	73 percent
	Hull from soyabean seed crushed	8 percent
Neem Seed	Oil to kernel crushed	45-50 percent
	Cake to kernel crushed	50-55 percent

Source : *Facts & Figures of Agriculture in Kerala (August 2005)*

#### CONVERSION FACTORS FOR COCONUT

##### A. Number of Coconuts to a tonne of Copra:

Kerala	6,250 to 6,850 (at present it is 7250-7500 nuts due to mite attack)
Andrapradesh	8,820
Tamilnadu	7,000
Laccadives	12,000

##### B. Copra yield from coconut in different months in Kerala at 6% moisture level/1000 nuts

January	163 kg
February	181 kg
March	178 kg
April	176 kg
May	179 kg
June	165 kg
July	152 kg
August	139 kg
September	147 kg
October	148 kg
November	155 kg
December	158 kg

##### C. Nuts to shell, Coconut water etc

1000 nuts	114 kg shell
1000 nuts	100 litres of coconut water
1000 nuts	35 kg of charcoal

##### D. Coconut Oil from Copra

Chekkus	58-60%
Rotories	62-63%
Expellers	63-65%

##### E. Ball copra from coconut (per 1000 nuts)

1.5 tonne (grade 1)
1.3 tonne (average)

<b>F. Deseccated coconut</b> (per 1000 nuts)	1 tonne of DC		
<b>G. Cake yield as percentage of copra crushed</b>			
Chekkus		38%	
Rottories		36%	
Expellers		34%	
<b>H. Coconut to Fibre</b> (per 1000 nuts)			
81.8 kg - kerala			
68.3 kg - Andhrapradesh			
90.0 kg - Tamilnadu			
81.9 kg - Karnataka			
56.9 kg - Others			
<b>I. Composition of Coconut (Husked)</b>			
Shell		27.9% (23.5 to 32.8)	
Kernel		55.2% (48.2 to 62.0)	
Water		17.0% (8.2 to 25.1)	
<b>J. Composition of Standard Copra</b>			
Moisture		6 %	
Oil		68 to 71%	
Free Fatty Acids		2 %	
Composition	Kernel	Copra%	Cake%
Moisture	46.3	5.8	10.7
Protein	4.1	8.9	19.1
Fat 37.3	37.3	67.0	11.1
Carbohydrates	7.9	12.4	40.9
Crude Fibre	3.4	4.1	14.1
Ash	1.0	1.8	4.1
<b>K. Fatty Acid Composition of Coconut Oil</b>			
Saturated Fatty Acids		Un-Saturated Fatty Acids	
Lauric Acid		Palmitoleic Acid	
Caprylic Acid		Oleic Acid	
Myristic Acid		Linoleic Acid	
Straric Acid		Arachidonic Acid	
Arachidic Acid			
<b>L. Coir pith per 10000 husk</b>	2 tonnes		
<b>M. Charcoal yield from shell</b> (per 3 tonnes of shell)	1 tonne		
<b>N. Processed coconut cream/1000 coconut</b>	200 kg cream		
<b>O. Coconut Vinegar</b> (per 100 litres coconut water)	110 litre vinegar		

## **AGMARK CERTIFICATION**

'Agmark' is a Quality Certification Mark of the Government of India given to products conforming to scientifically laid down quality standards.

### **Products commonly certified under AGMARK**

- Honey
- Ghee, Butter
- Chillies, Turmeric, Curry Powder, Garam Masalas, Cardamom, Cumin, Coriander and other curry powders.
- Vegetable Oils
- Spices
- Wheat, Atta, Maida, Suji, Besan, Pulses and many more items required by customers.

### **Certificate of Authorisation**

It is given to the packers authorising them to grade their commodity under AGMARK. Period of Validity will be 5 years.

For granting new certificate of authorisation separate application for each commodity should be produced.

### **Documents to be given along with application**

1. Sketch of the premises:-
2. Declaration regarding
  - i. Proprietorship/Partnership etc,
  - ii. Ownership of the premises
  - iii. Ownership of trade brand label
  - iv. Use of good grade quality containers for packing commodities.

All declarations has to given in five rupees stamp label attested by notary public.

3. A copy of licence from Panchayat/Municipality.
4. Bank reference:- Letter from the bank regarding the transaction fo the packer with the bank.
5. List of machineries.
6. Specimen signature of 2 authorised persons attested by the proprietor/managing partner.
7. Medical fitness certificate of employee.
8. Specimen copy and sketch of trade brand label

*For more details contact :-*

Deputy Agricultural Marketing Advisor, Directorate of Marketing and Inspection,  
Wellington Island, Kochi - 682 003, or State Agmark Grading Laboratories

### STATE CROP INSURANCE

Sl. No.	Crops	Minimum No./area of crop required for insurance	Age of the crop to be insured	Premium Amount	Rate of Compensation
1.	Coconut	10 Nos.	Palm giving a minimum of 30 coconuts per year	₹ 2/ palm/year ₹ 5/ palm if premium deposited for 3 years together	₹ 1,000/palm
2.	Arecanut	10 Nos.	Bearing	₹ 1/palm/year ₹ 2/palm if premium deposited for 3 years together	₹ 100/palm
3.	Rubber	25 Nos.	Tapping trees	₹ 2/tree/year ₹ 5 per tree if premium deposited for 3 years together	₹ 500/tree
4.	Cashew	5 Nos.	Bearing	₹ 2/tree/year ₹ 3/tree if premium deposited for 5 years together	₹ 200/tree
5.	Banana (Nendran, Kappa, Palayan-Kodan, Robusta)	10 Nos.	1-5 months after planting	₹ 2/plant	₹ 20/- (without bunch) ₹ 50/- (with bunch)
6.	Tapioca	0.02 ha.	1-5 months after planting	₹ 2/- for 0.02 ha.	₹ 100/- 0.02ha. (₹ 5,000/ha)
7.	Pineapple	0.02 ha.	1-6 months after planting	₹ 25/- for 0.02 ha.	(₹ 500/- 0.02 ha. (₹ 25,000/ha)
8.	Pepper	Vines in 15 standards.	Bearing	₹ 1/standard/yr ₹ 2/standard if premium deposited for 3 years together	₹ 40/- standard
9.	Cardamom	1 ha.	Bearing	₹ 1000/ ha/year ₹ 2500/ha if premium deposited for 3 years together	₹ 30,000/ha.

10.	Ginger	0.02 ha.	1-5 months after planting	` 10/- for 0.02 ha.	` 800/- for 0.02 ha. ` 40,000/ha.
11.	Turmeric	0.02 ha.	1-3 months after planting	` 10/-for 0.02 ha.	` 800/- for 0.02 ha. ` 40,000/ha.
12.	Coffee	10 trees	Bearing	` 1/plant/year ` 2/plant if premium deposited for 3 years together	` 75/- per plant
13.	Tea	1 ha.	Picking stage	` 1000/ha/year ` 2500/ha if premium deposited for 3 years together	` 60,000/- per ha. (Compensation for 10% of insured area or 2 ha. whichever is less)
14.	Cocoa	5 Nos.	Bearing	` 1/tree/year ` 2/tree if premium deposited for 3 years together	` 35/-per tree
15.	Groundnut	0.1 ha.	1-2 months after planting	` 25/- for 0.1ha.	` 800/-0.1ha. ` 8,000/ha.
16.	Sesamum	0.1 ha.	1 week to 1 month after sowing	` 25/for 0.1 ha.	` 500/-0.1ha. ` 5,000/ha.
17.	Vegetables	0.04ha. (with or without pandal)	1 week to 1 month after planting	` 10 for 10 cents	` 600/-for 10 cents ( ` 15000/ha without pandal) ` 1000/- for 10 cents ( ` 25000/ha with pandal)
18.	Nutmeg	5 Nos.	Bearing	` 2/tree/year ` 5/tree if premium deposited for 3 years together	` 200/- per tree



19.	Clove	5 Nos.	Bearing	₹ 2/tree/year ₹ .5/tree if premium deposited for 3 years together	₹ 150/- per tree
20.	Betel vine	1 cent	Started harvesting	₹ 5/cent/year	₹ 250/cent
21.	Pulses	0.1 ha.	2 weeks to 1½ months after planting	₹ 12.5/0.1ha.	₹ 250/0.1ha. ( ₹ 2,500/ha)
22.	Tuber Crops (Amorphophallus, Sweet potato)	0.02 ha.	1-3 months after planting	a. Amorphophallus ₹ 5/- b. Sweet potato ₹ 3/-	a. Amorphophallus ( ₹ 25,000/ha) b. Sweet potato ( ₹ 10,000/ha)
23.	Sugarcane	0.1 ha.	1-3 months after planting	₹ 60/0.1 ha.	₹ 3,000/0.1ha ( ₹ 30,000/ha)
24.	Tobacco	0.02 ha.	2 weeks to 2 months after planting	₹ 2/0.02 ha.	₹ 400/0.02 ha ( ₹ 20,000/ha)
25.	Paddy	0.1 ha.	15 days after planting/sowing to 2 months	₹ 10/0.1ha.	₹ 7,500 within 45 days ₹ 12,500 after 45 days

Source : Directorate of Agriculture.

**NATURAL CALAMITY-CROP ASSISTANCE FOR CROP LOSS**

Sl.No.	Name of Crop	Unit	Crop assistance ( ` )
1.	Paddy	ha	4000
2.	Coconut	bearing	300
3.	Coconut	non bearing	100
4.	Coconut	upto 1 year	25
5.	Banana	bunched	25
6.	Banana	non-bunched	12
7.	Rubber	being tapped	60
8.	Rubber (not less than 3 years old)	untapped	25
9.	Cashew	bearing	60
10.	Cashew (not less than 3 years old)	non bearing	20
11.	Arecanut	bearing	45
12.	Arecanut (not less than 3 years old)	non-bearing	30
13.	Cocoa	bearing	30
14.	Coffee		30
15.	Pepper	bearing	20
16.	Ginger	10 cents	50
17.	Turmeric	10 cents	50
18.	Tapioca	25 cents	50
19.	Groundnut	ha	750
20.	Sesamum	ha	750
21.	Vegetables	10 cents	50
22.	Nutmeg	bearing/tree	100
23.	Nutmeg (more than 3 years old)	non-bearing	50
24.	Clove	bearing	75
25.	Clove (more than 3 years old)	non-bearing	25
26.	Cardamom	ha	1500
27.	Betlevine	1 cent	150
28.	Pulses	ha	350
29.	Minor tubers	10 cents	50
30.	Sugarcane	ha	1250
31.	Pineapple	10 cents	125
32.	Fodder Crops	10 cents	30
33.	Mulberry	50 cents	125
34.	Tobacco	10 cents	300
35.	Cotton	10 cents	100

Source : Directorate of Agriculture

## PESTICIDES

### CALCULATIONS OF PESTICIDE FORMULATION

• **Foliar spray (WP and EC/AP)**

$$\text{Qty. of Commercial insecticide formulation} = \frac{\text{Total quantity of spray solutions required for the treated area}}{\text{Strength in \% of the spray solution desired}} \times \frac{\text{Strength of the chemical available}}{\text{Strength of the chemical available}}$$

• **Granules :**

$$\text{Qty. of Commercial insecticide formulation (kg)} = \frac{\text{Recommended rate (kg ai/ha)} \times \text{Area to be treated (ha)}}{\% \text{ ai in the commercial formulation}}$$

#### LIST OF PESTICIDES/PESTICIDES FORMULATIONS BANNED IN INDIA

**A. Pesticides Banned for manufacture, import and use**

1 Aldrin	2 Benzene Hexachloride
3 Calcium Cyanide	4 Chlordane
5 Copper Acetoarsenite	6 Cibromochloropropane
7 Endrin	8 Ethyl Mercury Chloride
9 Ethyl Parathion	10 Heptachlor
11 Menazone	12 Nitrofen
13 Paraquat Dimethyl Sulphate	14 Pentachloro Nitrobenzene
15 Pentachlorophenol	16 Phenyl Mercury Acetate
17 Sodium Methane Arsonate	18 Tetradifon
19 Toxafen	20 Aldicarb
21 Chlorobenzilate	22 Dieldrin
23 Maleic Hydrazide	24 Ethylene Dibromide
25 Trichloro Acetic Acid	26 Metoxuron
27 Chlorofenvinphos	28 Lindane (Banned vide Gazette Notification No S.O.637/E dtd 25/3/2011)- Banned for Manufacture, Import or Formulate w.e.f 25th March, 2011 and banned for use w.e.f 25th March, 2013

**B. Pesticide / Pesticide formulations banned for use but their manufacture is allowed for export**

1 Nicotin Sulfate	2 Captafol 80% Powder
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**C. Pesticide formulations banned for import, manufacture and use (4 Nos)**

1 Methomyl 24% L	2 Methomyl 12.5% L
3 Phosphamidon 85% SL	4 Carbofuron 50% SP

**Pesticide Withdrawn (7 Nos)**

1 Dalapon	2 Ferbam
3 Fomothion	4 Nickel Chloride
5 Paradichlorobenzene (PDCB)	6 Simazine
7 Warfarin	

#### LIST OF PESTICIDES REFUSED REGISTRATION

1 Calcium Arsonate	2. EPM
3. Azinphos Methyl	4 Lead Arsonate
5. Mevinphos (Phosdrin)	6 2,4,5-T
7. Carbophenothion	8 Vamidothion
9 Mephosfolan	10 Azinphos Ethyl
11 Binapacryl	12 Dicrotophos
13 Thiodemeton / Disulfoton	14 Fentin Acetate
15 Fentin Hydroxide	16 Chinomethionate (Morestan)
17 Ammonium Sulphamate	18 Leptophos (Phosvel)

#### PESTICIDES RESTRICTED FOR USE IN INDIA

1 Aluminium Phosphide	2 DDT
3 Lindane	4 Methyl Bromide
5 Methyl Parathion	6 Sodium Cyanide
7 Methoxy Ethyl Mercuric Chloride	8 Monocrotophos
9 Endosulfan	10. Fenitrothion
11. Diazinon	12. Fenthion
13. Dazomet	

Vide Order No: G.O.M.S.No: 116/2011/Agri dt.7-5-2011 Red labelled insecticides like Carbofuran, Phorate, Methyl parathion, Monocrotophos, Methyl demeton and Yellow labelled insecticides like – Triazophos, Prephenophos and fungicides like – Ediphenphos, Tricylazole, Oxythioquinox and weedicides like Anilophos, Paraquat, Thiobencarb and Atrazin are banned in Kerala.

Vide G.O.(MS) 136/2011/AD dt 23-5-2011 Government have decided to take all efforts to prevent the illegal transfer, storage and use of Endosulfan in all parts of the state.

Source : Directorate of Agriculture, Tvpm.

**(v) READY RECKONER FOR MAKING 100 LITRES OF SPRAY SOLUTION OF DESIRED STRENGTH**

% of pesticide /fungicide required in the diluted spray	Formulation in g or ml required per 100 litres of water									
	Percentage of ai. in the Formulation									
	100	80	75	50	40	35	30	25	20	10
0.01	10	12.50	13.30	20	25.0	28.5	34	40	50	100
0.015	15	18.75	19.95	30	37.5	42.8	51	60	75	150
0.02	20	25.00	26.60	40	50.0	57.1	67	80	100	200
0.025	25	31.25	33.25	50	62.5	71.4	83	100	125	250
0.03	30	37.50	39.90	60	75.0	85.7	100	120	150	300
0.035	35	43.75	46.55	70	87.5	100.0	119	140	175	350
0.04	40	50.00	53.20	80	100.0	114.3	134	160	200	400
0.045	45	56.25	59.80	90	112.5	128.8	153	180	225	450
0.05	50	62.50	66.50	100	125.0	142.9	167	200	250	500
0.075	75	93.75	100.00	150	187.5	214.3	252	300	375	750
0.1	100	125.00	133.00	200	250.0	285.7	334	400	500	1000
0.2	200	250.00	266.00	400	500.0	571.5	668	800	1000	2000
0.25	250	312.50	331.00	500	625.0	714.3	835	1000	1250	2500
0.3	300	375.00	399.90	600	750.0	857.1	1000	1200	1500	3000
0.4	400	500.00	532.00	800	1000.0	1143.0	1340	1600	2000	4000
0.5	500	625.00	665.00	1000	1250.0	1429.0	1670	2000	2500	5000
1.0	1000	1250.00	1330.00	2000	2500.0	2857.0	3340	4000	5000	10000

## **BOTANICAL PESTICIDES**

### **1. Leaf / Plant Extract**

#### **Preparation of 5% extract**

Macerate 50g of leaf / plant in a mixer. Soak the macerated product in 1 litre of water for 24-48 hours. Strain the solution and spray.

### **2. Neem Seed Kernel Extract (NSKE)**

#### **Preparation of 5% NSKE**

Grind neem kernel to coarse powder. Take 50g of the powder in a cloth bag and dip it in 1/2 litre of water for 24 hours. Squeeze the cloth bag repeatedly till the out flow turns light brown. Dissolve 5g of ordinary bar soap in 0.5 litre of water. Add the soap solution to the kernel extract, stir well and spray.

### **3. Tobacco decoction**

Steep 500 g of tobacco waste in 4.5 litre of water for 24 hours. Dissolve 120g. of ordinary bar soap separately in 0.5 litre of water. Add the soap solution to the tobacco extract and stir vigorously. Add 5 litres of water to this stock solution and spray.

### **4. Neem oil + garlic 2% emulsion**

#### **Preparation of 10 litres**

Ingredients : 200 ml neem oil, 200g garlic and 50g ordinary bar soap.

Preparation : Slice the bar soap and dissolve in 500 ml luke warm water. Grind the garlic pearls, mix it with 300 ml water and strain to prepare garlic extract. Pour the 500 ml soap solution into 200ml neem oil slowly and stir vigorously to get a good emulsion. Mix the garlic extract in the neem oil + soap emulsion. Dilute this 1 litre stock solution by adding 9 litres of water to get 10 litres of 2% neem oil + garlic emulsion.

### **5. Preparation of 5% Cashew Nut Shell Liquid (CNSL) emulsion**

To prepare 10 litres of 5% CNSL emulsion, 500 ml of CNSL and 50 g bar soap are required. Slice the bar soap and dissolve in 500 ml of water. Pour 500 ml of CNSL slowly and stir vigorously to get a good emulsion. Dilute this one litre solution by adding 9 litres of water to get 10 litres of 5% CNSL emulsion.

### BOTANICAL PREPARATIONS FOR PEST CONTROL

<b>1. Neem / <i>Azadirachta indica</i></b>		
<b>Preparation</b>	<b>Dose</b>	<b>Pest</b>
Neem Leaf	250 g / plant	Nematodes of bhindi, brinjal
Leaf Extract	2-5%	Leaf feeders of amaranthus like <i>Spodoptera litura</i> & leaf webber, aphids of vegetables
Neem Twig	Planting neem twigs in coconut gardens after receipt of monsoon rains during April - May for controlling root grubs.	
NSKE	3-5%	Aphid of brinjal, Shoot & Fruit borer of okra, brinjal <i>Helicoverpa armigera</i> of tomato and cowpea, Pod fly of cowpea, American Serpentine Leaf miner of Vegetable (ASLM) (Cucurbits, brinjal, cowpea), Ornaments (Marigold)
Neem oil	2.5-10%	Pea aphid, ASLM, Epilachna Beetle, Mites of vegetables.
Neem oil	4 %	GLH, BPH of rice
Neem Cake	250 kg/ha	Shoot & fruit borer of bhindi, brinjal
Neem Cake Extract	10%	Root knot nematode of vegetables
<b>2. Custard apple - <i>Annona squamosa</i></b>		
Leaf Extract + Cow's urine	10% + 10%	Leaf feeders
Seed Extract	2-5 %	Lepidopteran pests like Epilachna beetle of Brinjal & Bitter gourd, Pea Aphid, Stem Borer, Bugs.
<b>3. Tobacco - <i>Nicotiana tabacum</i></b>		
Tobacco decoction	Soft bodied insects of all kinds (aphids, jassids, mealy bugs, hoppers)	
<b>4. Clerodendron - <i>Clerodendron infortunatum</i></b>		
Plant extract	4-8%	Tobacco caterpillar, Epilachna beetle of brinjal, cucurbits, Leaf roller of okra

Fresh plant or shade dried powdered plant mixed with cow dung	1:10	Rhinoceros beetle of coconut
<b>5. Vilaitulsi - <i>Hyptis suaveolens</i></b>		
Plant Extract	10%	Aphid and soft bodied pests of vegetables
<b>6. King of bitters - <i>Andrographis paniculate</i></b>		
Plant Extract	10%	Jassids of cucurbits, Leaf caterpillars
<b>7. Yellow Oleander - <i>Thevetia nerifolia</i></b>		
Leaf Extract	4-10%	Leaf Webber of Amaranthus, Aphids of Brinjal and Cowpea. Leaf roller of Bhindi, Epilachna Beetle of brinjal
Seed Extract	2%	Leaf feeders like epilachna beetle of brinjal & bitter gourd
<b>8. <i>Chromolaena (Eupatorium) odorata</i></b>		
Leaf	15 t/ha two weeks before planting Mulching @ 3 t/ha at 30 days after planting	Nematodes of Vegetables . Sweet potato Weevil
<b>9. Tulsi-<i>Ocimum spp</i></b>		
Plant	Handful of crushed ocimum + 10g jaggery + 0.5 g Custard apple seed extract 5%	Fruit fly of cucurbits, mango
<b>10. Chinese chaste tree - <i>Vitex negunda</i></b>		
Leaf Extract	5-10%	Fruit & shoot borer of okra, Leaf caterpillars of cucurbits, H. armigera of chick pea.
Dried powdered leaf	1:100	Stored product pests
<b>11. Lantana - <i>Lantana camara</i></b>		
Plant extract + Cow's urine	10% + 10%	Soft bodied pests
<b>Mixtures</b>		
1.	Tobacco decoction + <i>T. nerifolia</i> leaf extract (4%) Tobacco decoction + <i>C. infortunatum</i> (4%)	



Effective against pests of amaranthus, okra, brinjal, bitter gourd and cow pea.

2. Neem oil (20 ml) + garlic 20g + 5g soap / litre of water - Coconut eriophyid Mite.
3. A. paniculata extract (10%) + cow's urine (10%) + 10g bird chilli / litre - caterpillar pest.
4. Neem oil (20ml) + pongamia Oil (10ml) + garlic (20 g) + 5g soap / litre given as 3 sprays - panicle initiation, berry formation & berry maturation controls pollu beetle of pepper.
5. Keeping castor cake soaked in water @ 1 Kg/5 litre of water in small mud pots in coconut garden attracts rhinoceros beetles which can be collected and killed.

### **PREPARATION OF PERMITTED FUNGICIDES FOR ORGANIC FARMING**

#### **Bordeaux mixture (1%)**

Dissolve 1kg of powdered copper sulphate crystals in 50 litres of water. In another 50 litres of water, prepare milk of lime with 1 kg of quick lime. Pour the copper sulphate solution into the milk of lime slowly stirring the mixture all the while. Test the mixture before use for the presence of free copper, which is harmful to the plants, by dipping a polished knife in it. If the blade shows a reddish colour due to the deposit of copper, add more lime till the blade is not stained on dipping. Always use wooden, earthen or copper vessels for the preparation of Bordeaux mixture. Use the fungicide in the same day of preparation.

In order to confer sticking qualities to Bordeaux mixture, rosin washing soda mixture, may be added. The addition of the sticker is particularly recommended for sprayings conducted during rainy season. For preparing the mixture, 10 litres of water out of 100 litres required for preparing Bordeaux mixture may be kept apart. Boil 10 litres of water, preferably in an earthen pot and add 500 g of good quality washing soda (sodium carbonate). Boil again until the solution becomes slightly dark in colour. Add one kg of powdered rosin (arpoons) in the boiling washing soda solution. Reduce the flame for avoiding frothing, foaming and spilling over. Boil the solution for 5-10 minutes till the black bubbles appear. Cool the solution until the temperature reaches below 45 degree Celsius. The cooled mixture (10 litres) is then added slowly to the prepared Bordeaux mixture (90 litres) under vigorous stirring.

#### **Bordeaux paste**

Dissolve 100 g of copper sulphate and 100 g of quick lime each in 500 ml of water separately. Mix together to make one litre of the paste.

## CROP PROTECTION

### MANAGEMENT OF PESTS

#### RICE

##### VARIETAL RESISTANCE / TOLERANCE

While selecting the varieties for organic farming, emphasis should be given to multiple resistance / tolerance to major pests of that locality. Use of a variety with some degree of genetic resistance, combined with other non chemical methods can manage the pests effectively.

##### Rice varieties with multiple tolerance to major pests

Aruna, Aathira, Aiswarya, Nila, Revathy	
Remanika, Karishma, Krishnanjana	- BPH and gall fly
Nila (PTB 48)	- Thrips, PH, gall midge, stem borer
Kanakom, Karthika	- BPH, stem borer and gallfly
Makom, Reshmi	- BPH, stem borer, gall fly
Aruna	- BPH, stem borer, gall midge
Jayathi	- BPH, GLH and leaf roller
Bhagya	- BPH, WBPH
Kanchana	- Stem borer, gall midge
Sagara, Deepthi	- Stem borer, leaf roller
Varna (VK1)	- Leaf folder, whorl maggot and stem borer
Lakshmi	- BPH, Stem borer and leaf roller
Dhanya	- Stem borer, gall midge
Kairali	- Leaf roller and gall fly

##### CULTURAL CONTROL

Pest incidence can be minimized by adjusting and modifying the cultivation practices. Some of the cultural practices that can be adopted by the farmers are:

1. Field sanitation by incorporation of stubbles immediately after harvest will help to destroy over wintering population of insect pests like stem borer and gall midge. Deep ploughing after harvest is recommended.
2. Optimum seed rate and spacing : High seed rate and closer planting cause thick population which favours the pests like leaf folder, BPH etc.
3. Timely sowing or planting is important to avoid pest incidence. Altering the dates of sowing / transplanting preferably not coinciding the favourable climate for pest outbreak. For example late planting in the first crop season favours the incidence of gall midge. Hence late planting should be avoided.
4. May of the weeds will serve as alternate and collateral hosts of several pests. Destruction of weeds in the field and bunds will help in reducing the population build up of the pests.
5. Draining the field for two days will help to reduce case worm incidence. The incidence of thrips can be reduced by flooding the field for 24 hours.

### **MECHANICAL CONTROL**

For controlling case worm, pull kerosinised rope across plants to dislodge cases hanging on the plants into water and then drain off the water.

Removal of egg masses of stem borer from the plant will help to reduce the pest population.

#### **Light traps:**

Installation of light traps in the field would attract and kill the moths of leaf folder, stem borer, BPH, gall fly and rice bug.

#### **Pheromone traps:**

Pheromones have been found effective for the management of yellow stem borer and can be utilized for monitoring as well as for direct control through male annihilation either by mass trapping or by disrupting mating communication.

For monitoring stem borer population, three traps should be installed at an inter trap distance of 60 m in a triangular pattern in one acre field. Male moth catch is recorded at three days interval. Sudden increase in the average catch of the trap coincides with the emergence of adults. Weekly catch of 30 males per trap can be taken as the capture threshold which precedes borer damage.

Mass trapping of stem borer by installing pheromone traps @ 20 numbers / ha can effectively reduce the stem borer damage. The pheromone trap is retained throughout the crop stage by replacing 3-4 times the 5 mg lure at 20 day intervals. Pheromone traps can be installed in the nursery also.

### **BIOLOGICAL CONTROL**

Organic farming favours conservation of natural enemies in the rice field, which in turn help to keep the pest population low. The common natural enemies found in the rice ecosystems are:

Dragon flies and Damselflies, Spiders, Predatory bugs, Predatory beetles, Predatory grasshoppers, Egg parasitoids, Larval parasitoids etc.

#### **Inundative release of Parasitoids**

The egg parasitoid *Trichogramma* is a widely used biocontrol agent in rice through out the country for the control of stem borer and leaf folder. *Trichogramma japonicum* is effective against stem borer and *Trichogramma chilonis* is effective against leaf folder. 5 cc egg cards is sufficient for installation in one hectare. Six releases of these parasitoids at weekly intervals is required for a crop season. For the control of stem borer, the egg cards have to be installed in the field starting from the first week after transplanting and for leaf folder, the installation has to be started from 20 days after transplanting or when the moths of these pests are observed in large numbers in the field.

#### **Botanical pesticides**

Utilisation of botanical formulations especially neem formulations is an ecofriendly method of pest control in rice. Neem formulations act as feeding deterrents, growth retardants, oviposition deterrents and reproductive inhibitors. Application of 2% neem oil or 10% neem cake extract can control rice thrips.

Pocket application of biopesticides may be adopted in heavily infested areas to control further spread of the pests and to conserve the existing natural enemy population. Careful monitoring of the field is very important to adopt proper pest management practices in a timely manner.

## COCONUT

Rhinoceros beetle

- ◆ Provide field sanitation to prevent breeding of beetles
- ◆ Hook out the beetles from the attacked palms by using beetle hook.
- ◆ The topmost three leaf axils around the spindle may be filled with 250g neem cake or marotti cake mixed with equal volume of sand in the innermost 2-3 leaf axis. This treatment is to be done twice, i.e., during April-May before the onset of South-West monsoon and during September-October after the South-West monsoon.
- ◆ Incorporation of *Clerodendron infortunatum* @10% w/w basis in the cowdung pit/manure pit.
- ◆ Dust manure pit walls with lime powder and plaster with cow dung.
- ◆ Boil castor cake and groundnut cake with a little quantity of water. Keep in earthen pots near light source to attract beetles, which can be collected and killed.
- ◆ Mix sand (250 g) and neem seed powder (100 g) and fill inner leaf sheaths of youngest leaves.
- ◆ Release *Baculovirus oryctes* infected adults @ 10-15/ha to bring down the pest population.
- ◆ Inoculation of breeding sites with entomopathogenic fungus *Metarrhizium anisopliae* (@  $5 \times 10^{11}$  spores/ml) gives effective control.

Red palm weevil

- ◆ Field sanitation should be given prime importance.
- ◆ Avoid making steps or any other injury on the tree trunks to reduce the loci of infestation
- ◆ Leaf axil filling as suggested in the case of rhinoceros beetle will be useful against the red palm weevil also.
- ◆ When green leaves are cut from the palms, stumps of not less than 120 cm may be left on the trees in order to prevent successful inward movement of the grubs through the cut end.
- ◆ Clean the crown periodically before and after rain.
- ◆ Mix sand and nerium seed powder and fill the bore holes.
- ◆ Coconut log traps with fermenting toddy or pineapple or sugarcane activated with yeast or molasses can be set in coconut plantation to attract and trap the free floating population of red palm weevil.
- ◆ Use of pheromone trap for attracting and killing adult weevils @ one trap per 2 ha.

Leaf eating caterpillar

- ◆ As a prophylactic measure, the first affected leaves may be cut and burnt during the beginning of the summer season.
- ◆ Arrange for the release of larval/pupal parasitoids, *Goniozus nephantidis*, *Elasmus nephantidis* (brown species) and *Brachymeria nosatoi*.
- ◆ Mix extract of 2kg neem seed kernal and 200g soap in 200 litres of water and spray followed by release of larval/pupal parasites.

Cockchafer beetle	<ul style="list-style-type: none"> <li>◆ Collection and destruction of adults during the monsoon period from adjacent vegetation (in the evening)</li> <li>◆ Plough or dig the infested soil synchronizing with pre-monsoon showers.</li> <li>◆ Apply sugar solution in coconut basin near root zone.</li> <li>◆ Leaf loppings of <i>Anacardium occidentale</i>, <i>Tamarindus indica</i> and <i>Tectona grandis</i> and drenching with cashewnut shell liquid (CSNL) solution (2% v/v) is effective against root grub.</li> </ul> <p>Note : Wherever possible, light traps may be set up to attract and trap adult beetles.</p>
Coconut eriophyid mite	<ul style="list-style-type: none"> <li>◆ Collect and destroy all the fallen buttons of the affected palm.</li> <li>◆ Apply 2% neem oil+garlic emulsion or commercial neem formulation azadirachtin 0.004% (Neemazal T/S 1% @ 4 ml per litre of water) or micronized wettable sulphur 0.4% in the crown on young bunches.</li> <li>◆ Improving nutrient status by applying organic manure at the rate of 50 kg and neem cake 5 kg per palm per year. Also apply the recommended dose of fertilizers in two split applications.</li> <li>◆ Growing compatible intercrops/mixed crops.</li> <li>◆ Providing adequate irrigation.</li> </ul>
Mealy bug	<ul style="list-style-type: none"> <li>◆ Remove and destroy all dried up inflorescence and unproductive buttons. Neem garlic emulsion 2% applied on infested bunches checks button mealy bugs.</li> </ul>
Rodents	<ul style="list-style-type: none"> <li>◆ Boil 10kg wheat and two large pieces of glyricidia bark and broadcast in field as bait.</li> <li>◆ Mix gypsum and sugar and keep in places as bait where rats are frequent.</li> <li>◆ Take one part nerium seed powder + nine parts rice + one part coconut pulp + a little oil. Mix well and use as a bait.</li> <li>◆ Mix shrimp powder and cement (dry) and keep as bait. Pre baiting with shrimp powder alone will be more effective.</li> <li>◆ Use tin barrier around tree trunk to prevent rat damage.</li> </ul>

## DISEASE MANAGEMENT

### RICE

#### Varietal resistance

Select varieties with built-in resistance to major diseases.

**Blast** : Rohini, Bharati, Mattatriveni, Jayathi, Neeraja, Kairali, Kanchana, Nila, Aathira, Aiswarya, Harsha, Kanakom, Renjini, Remanika, Lakshmi, Onam, Dhanya, Sagara, Deepthi, Ahalya.

**Sheath blight** : Reshmi, Mattatriveni, Nila, Kairali, Karthika, Aathira, Aiswarya, Pavizham, Karthika, Aruna, Makom, Remya, Kanakom, Gouri, Lakshmi, Bhagya, Onam, Dhanya and Sagara.

#### Cultural practices

- ◆ Deep summer ploughing of the fields
- ◆ Use properly dried, disease free seeds.

- ◆ Follow optimum time for sowing / plaining
- ◆ Apply rice hull ash @ 100 g/m<sup>2</sup> which will help to reduce the incidence of blast in the nursery.
- ◆ Destroy / remove disease harbouring weeds from the field.
- ◆ Give optimum spacing
- ◆ Follow proper water management. Water logging favours diseases like sheath blight. Draining the field for one or two days will help to reduce the spread of the disease.
- ◆ Avoid clipping of leaf tips at the time of transplanting in bacterial blight endemic areas.

Note : Incorporation of green manures like *Pterocarpus marsupium*, *Eupatorium odoratum* and *Mangifera indica* (Mango) @ 5 t/ ha or application of leaves of plants such as *Lawsonia inermis*, *Calotropis*, *Azadiracta indica*, *Datura Stramonium* and *Glyricidia* @ 2.5 t / ha will also reduce incidence of sheath blight.

#### **Bio-control agents**

Application of *Pseudomonas fluorescens* P1 in different ways viz., seed treatment, seedling root dip, soil application or foliar spray will effectively control fungal diseases and bacterial diseases.

**Seed treatment** : Treat the seeds with talc based formulation @ 10 g per kg of seed. It wet sowing in practiced, treated seeds are soaked in water for 12 hours. Drain the excess water and keep for sprouting.

**Seedling root dip** : Dip the roots of the seedlings before transplanting in solution of *P. fluorescens* (20g/ litre) for 30 minutes. Seedling root dip can be easily done in the field itself. Water is to be impounded in the field by taking pits or making bunds and mix the talc based formulation in water. The pulled out seedlings are to be kept in such a way so as to immerse the roots in *P. fluorescens* mixed water. After half an hour seedlings are planted in the main field. For dipping the seedlings for one ha, 2.5 kg talc based formulation is required.

**Soil Application** : Apply talc based formulation of *P. fluorescens* @ 2.5 kg per ha one week after transplanting or 30 – 40 days after sowing for the direct sown crop. Mix 2.5 kg of *P. fluorescens* with 50 kg dried cow dung or sand and broadcast in the field. Dewater the field before the application of the culture.

**Foliar spray**: *P. fluorescens* can be sprayed on the foliage @ 20 g/ litre of water. Spraying can be repeated depending on the disease severity. The application of *P. fluorescens* for a minimum of three times like seed treatment, seedling root dip and one foliar spray will be very effective in providing protection of rice crop from disease incidence.

PGPR mix II : root dip and foliar application of PGPR mix II give effective protection against fungal and bacterial diseases.

Foliar spray of cow dung slurry is also effective for the management of bacterial blight of rice. Fresh cow dung @ 20 g/ litre is mixed in water and the supernatant is used for spraying. The bacteriophages present in the cow dung act against the pathogenic bacteria present on the plant. 500 litres of cow dung liquid is need for one hectare.

## COCONUT

- |                     |  |
|---------------------|--|
| Bud rot             | <ul style="list-style-type: none"><li>◆ In early stages of the disease (when the heart leaf starts withering) cut and remove all affected tissues of the crown. Apply Bordeaux paste and protect it from rain till normal shoot emerges.</li><li>◆ Burn all disease-affected tissues removed from the palm.</li><li>◆ Spray 1% Bordeaux mixture on spindle leaves and crown of disease affected as well as neighbouring palms, as a prophylactic measure.</li><li>◆ Adopt control measures for rhinoceros beetle.</li><li>◆ Provide adequate drainage in gardens.</li><li>◆ Adopt proper spacing and avoid over crowding in bud rot prone gardens.</li></ul>   |
| Mahali              | <ul style="list-style-type: none"><li>◆ Spray 1% Bordeaux mixture on the crown of palms, once before the monsoon and once or twice later on at intervals of 40 days.</li></ul>   |
| Root (wilt) disease | <ul style="list-style-type: none"><li>◆ Rogue out palms that are affected severely by root (wilt) and yield less than 10 nuts/palm/year and those, which have contracted the disease before flowering. Replant with disease tolerant material/high yielding hybrids (Chandrasankara)</li><li>◆ Growing green manure crops like sunhemp, sesbania, cowpea and calapagonium in the coconut basin and their incorporation in situ is beneficial as the practice reduces the intensity of the root (wilt) and increases the nut yield. The ideal green manure crops for the sandy and alluvial soils are cowpea and sesbania, respectively.</li><li>◆ Apply manures in 10 cm deep circular basins at a radius of 2 m from the base of the palm.</li><li>◆ When the crop is grown under the bund and channel system, desilt the channel and strengthen the bunds during summer months.</li><li>◆ Ensure proper drainage in the field during rainy season.</li><li>◆ Follow strictly all the prescribed prophylactic measures against leaf rot disease, red palm weevil, rhinoceros beetle etc. so as to ensure that the palms are not debilitated. To maintain the productivity of the palms, prophylactic measures are of great importance. Apply <i>Trichoderma</i> + <i>Pseudomonas fluorescence</i> so as to enhance the soil health.</li></ul> |

**Package for severely affected areas :** Apply FYM 25kg + coirpith compost 25 kg + wood ash 5kg + kayal silt ( if available) per coconut basin. Sow 35 g of cowpea seeds per basin of 1m width and incorporate the biomass in the soil. Bury coconut husks of 25 coconuts in the basins and apply water.

- |               |  |
|---------------|--|
| Leaf rot      | <ul style="list-style-type: none"> <li>◆ Remove the rotten portions from the spear and the two adjacent leaves.</li> <li>◆ Spray crowns and leaves with 1% Bordeaux mixture in January, April-May and September. While spraying care has to be taken to spray the spindle leaf.</li> <li>◆ Application of <i>Pseudomonas fluorescence</i> 2% suspension in the leaf at the initial stage of infection.</li> </ul>  |
| Stem bleeding | <ul style="list-style-type: none"> <li>◆ Chisel out completely the affected tissues and paint the wound with Bordeaux paste.</li> <li>◆ Destroy the chiseled materials by burning. Avoid any mechanical injury to trunk.</li> <li>◆ Apply neem cake @ 5 kg per palm in the basin along with other organics.</li> <li>◆ Apply <i>Trichoderma</i> @ 50g/ palm along with FYM.</li> </ul>   |
| Grey blight   | <ul style="list-style-type: none"> <li>◆ Remove severely affected older leaves and burn. Spray the trees with 1% Bordeaux mixture.</li> </ul>  |
| Tanjore wilt  | <ul style="list-style-type: none"> <li>◆ Apply organic manure @ 50 kg/palm.</li> <li>◆ Apply neem cake @ 5 kg/palm/year.</li> <li>◆ Drench the basin with 40 litres of 1% Bordeaux mixture to soak soil upto 15 cm depth at quarterly intervals.</li> <li>◆ Avoid flood irrigation in order to prevent the possible spread of the pathogen through soil.</li> <li>◆ Isolate the affected palm from the healthy ones by digging a trench of size 1 m deep and 50 cm wide, 1.5 m away from the bole of the infected palm.</li> <li>◆ Avoid growing leguminous crops in and around the garden.</li> </ul> |

Source: Package of Practices Recommendations (Adhoc) for Organic Farming : Crops, KAU 2009.



## Farming with Precision



Precision Farming is a concept of using the new technologies and collected field information, doing the right thing, in the right place, at the right time. Collected information may be used to more precisely evaluate optimum sowing density, estimate fertilizers and other inputs needs, and to more accurately predict crop yields. It helps in avoiding unwanted practices to a crop, regardless of local soil/climate conditions, i.e., it reduces labour, water, inputs such as fertilizers, pesticides etc. and assures quality produce. With the motive of making farming more profitable and risk-free Govt. of Kerala is also giving priority to Precision Farming.

## Organic Farming for Safe Food and Secure Environment



Overuse of chemicals in agriculture will result in environmental degradation, pollution and loss of life. One of the reasons for the increase in food and environmental related diseases such as cancer and reproductive disorders in humans is the consumption of food and water having residual toxicity of pesticides and fertilizers. On the other hand people are getting more conscious of this problem and yearning for safe food. There is no known case of any infection or health disorder till date affecting people consuming organically grown food. Thus organic food products are having a huge market potential and fetch better prize. Considering all this Govt. of Kerala will be giving priority to Organic Farming.

## **ORGANIC CERTIFICATION**

Organic certification means having the farm and the farmer's methods inspected by an organic certifying group to ensure that they comply with the guidelines on organic farming. Organic certification improves the image of organic agriculture and provides transparency in certification. For gaining consumer's confidence, valid organic certification is an essential pre-requisite for marketing especially in the export market. Generally organic certification involves many standards, inspection and certification.

Certification is a procedure by which a third party gives a written assurance that a product, causes or service is in conformity with certain standards. Organic standards are defined as minimum production practices including storage, transportation, processing, handling, packing and labelling requirements which must be followed for certifying the products as organic.

It is to be recognized that animals are a part of organic farming system since they contribute to nutrient cycles, soil fertility and higher yields. Draught purpose is achieved and the by products are utilized well. Forage crops improve crop rotation and allow for diversification in farming. There are many organic standards on national as well as international levels. Generally standards vary with the country and to sell the products in a particular country, the standards of the importing country are to be followed. Certification is the key to the national organic program. In US since 21st October 2002 it is a federal offence to label any food product as organic unless it has been certified. Certification process focuses on the methods and materials used in production. There are two main requirements:

1. The methods and materials used in production must meet organic standards.
2. There must be clear and ongoing documentation of these methods and materials.

The concept of organic certification is that a third party - an organic certifying agent evaluates producers, processors and handlers to determine whether confirm to an established set of operating guideline called organic standards. Those which confirm are certified by the agent and allowed to use a logo, product statement or certificate to document their product as certified organic. In other words, the certifier vouches for the producer and assures buyers of the organic product's integrity.

## **CERTIFICATION IN INDIA**

The Ministry of Commerce launched NPOP (National Programme for Organic Production) in March 2000, designed to establish national standards for organic products, which could then be sold under the logo "India organic". For the proper implementation of NPOP, NAPP (National Accreditation Policy and Programme) has been formulated with Accreditation Regulations announced in May 2001. These make it mandatory that all certification bodies whether international or foreign operating in the

country must be accredited by an Accreditation Agency. There are six accreditation agencies in India:-

1. Agricultural Processed Food Products Export Development Authority (APEDA)
2. Coffee Board
3. Spices Board
4. Coconut Development Board
5. Tea Board
6. Directorate of Cashew and Cocoa Development

APEDA has recognized the following Inspection Certification bodies, all of these are able to certify based on the NPOP:

1. BVQ1 (India) Pvt. Ltd (Mumbai)
2. E cocert (Aurangabad)
3. IMO control private limited (Bangalore)
4. Indian organic certification agency (Indocert, Aluva)
5. International Resources for farmer trade members
6. Lacon quality certification Pvt. Ltd (Theepany, Kerala)
7. National organic certification Association Pvt. Ltd (Pune)
8. One Cert Asia Agri Certification Pvt. Ltd (Jaipur)
9. SGS India Pvt. Ltd (Gurgaon)
10. Skal International (Bangalore)
11. Uttaranchal State Organic Certification Agency (Uttaranchal).

Many of the Indian farmers are small scale, poor farmers who may not be able to afford the cost of certification. Private certification bodies are creating International control systems and participatory guarantee system as alternative means of certification to reduce the cost of certification.

*Source: Package of Practices Recommendations (Adhoc) for Organic Farming: Crops, KAU 2009.*

## DEPARTMENT OF ANIMAL HUSBANDRY

Department of Animal Husbandry in Kerala came into existence in 1956.

The major activities of the department are veterinary services and animal health care, disease eradication programmes, cattle, goat, pig and poultry development programmes, control of zoonotic diseases, extension, training programmes for farmers and veterinarians, production of biologicals and strengthening and upgradation of regional laboratories.

The activities of the Animal Husbandry Department have been led by the broad goal of rendering livestock forming a strong component of general development process in the State. Specifically this has the following main components.

- ◆ Strengthening the livestock population of the State in terms of both number and quality
- ◆ Increasing the production of milk, egg and meat.
- ◆ Creating more self-employment opportunities in the Animal Husbandry sector.
- ◆ Assisting weaker sections of the society to enhance their income level.
- ◆ Control of Animal Diseases
- ◆ Conduct scientific studies into relevant aspects of livestock rearing.
- ◆ Collection and analysis of data and information on the AH sector of the State.
- ◆ To equip the farmers with modern scientific practices in Animal Husbandry

Protective and promotional activities of the Animal Husbandry Department are being conducted through various institutions namely, Veterinary Dispensaries, Veterinary Hospitals, VPC, District Veterinary Centres, ICDP and ICDP sub centres.

### OBJECTIVES OF THE DEPARTMENT OF ANIMAL HUSBANDRY

- To evolve Schemes to retain the traditional livestock farmers in AH Sector.
- Transfer of Technology from labs to field.
- To exploit the production potential of Livestock & Poultry.
- Effective implementation of breeding policy.
- Capacity building of technical and administrative staff.
- IT applications for better office management.
- To conduct Research and Development and survey on problems faced by the farmers, consumers and public.
- To continue supply of good quality germ plasm to farmers.
- To conserve local breeds pertaining to livestock and poultry of our state.
- To implement innovative Schemes like rearing of Malabari Goats, Quail husbandry, Rabbit husbandry, Bull calf rearing, Azolla cultivation etc.
- To implement Hygienic Meat Production by proper Meat Inspection & Modernisation of Slaughter Houses.
- Effective Control of Zoonotic diseases through treatment, Screening of Animals, Vaccination, Creating public awareness through Farm Information Bureau.

## **INSTITUTIONS UNDER THE DIRECT CONTROL OF HEAD QUARTERS**

- Chief Disease Investigation Office, Palode.
- Epidemiological Cell, Thiruvananthapuram
- Institute of Animal Health and Veterinary Biologicals, Palode
- ADCP, Goraksha, Tvpm.
- Special Livestock Breeding Programme – Head Quarters, Thiruvananthapuram
- Central Hatchery, Chengannur
- Avian Disease Diagnostics Lab, Thiruvalla
- Cattle Sterility Office, Aluva
- Swine Husbandry Office, Aluva
- Rinderpest Eradication Scheme, Head Quarters, Palakkad
- Livestock Management Training Centres at Mundayad, Malampuzha, Aluva and Kudappanakkunnu.

## **INSTITUTE OF ANIMAL HEALTH & VETERINARY BIOLOGICALS, PALODE**

The Institute of Animal Health & Veterinary Biologicals located at Palode, Thiruvananthapuram District, was set up by the Animal Husbandry Development during December 1979. The Institute was established with a view to meet the increasing demand for Veterinary Biologicals, which were earlier, produced on a limited scale at the Veterinary Biological Institute at Mannuthy, Thrissur. The institute is at present producing viral and bacterial vaccines against cattle and poultry disease.

The campus extends over 46.526 Acres of land and consists of main Laboratory Complex, Standardization Laboratory, Research and Development Division, Administrative block, Animal breeding Station, Observation sheds, incinerator and Residential Quarters.

The institute plays a major role in protecting domestic animals and birds against major infectious disease that could be controlled by vaccination. The institute is currently manufacturing four Freeze Dried Attenuated Viral Vaccines for use in poultry and four bacterial vaccines for use in dairy industry. These immuno biologicals are subjected to rigorous in vitro, and in vivo testing protocols in line with the current international standards and supplied to the farming community free of cost through a strong network of Veterinary Service Institution through out the state.

A pharmaceutical division also started in the institute. Its aim is to supply dewormers and topical applications for the A.H. Department.

## **DISTRICT LEVEL ADMINISTRATION**

The responsibility of district level Animal Husbandry activities is vested with the District Animal Husbandry Officer in the cadre of Joint Director.

The District Animal Husbandry Officer has technical as well as administrative control over all the veterinary institutions in the districts except those, which are directly administered from the head quarters. In technical matters a Deputy Director and a Veterinary Surgeon assist District Animal Husbandry Officer.



Various Animal Husbandry activities have been conducted under the guidance of District Animal Husbandry Officer for ensuring Animal Husbandry and welfare of farmers.

### **ASSISTANCE TO STATES FOR CONTROL OF ANIMAL DISEASES (ASCAD)**

The scheme envisages for control of major animal diseases by providing strategic immunization cover, strengthening of important diagnostic laboratories and biological production centers, take up disease surveillance, monitoring and forecasting, information and communication campaigns and equipping of technicians.

The high demand of livestock and its products pave way for large inflow of animals and birds from neighboring states which necessitate the total inoculation of animals and birds within the state, strengthening of clinical laboratories, biological production centers to perform to the reputed standards, equip our technicians to tackle any biological disasters and to knit up a strong data base of disease profile of our state and also of neighboring states to trigger up preventive measures within our state. Since there is no financial assistance from NDDB from the year 2009 -10 onwards, the project has to be run from the contributions from the Government Of Kerala and from the available interest of corpus fund of the project.

An amount of Rs200.00 Lakh has been earmarked in the budget 2011-12 under the head of account 2403-101-79 for the continuation of the project, for the implementation of ADCP during this financial year.

### **ANIMAL DISEASE CONTROL PROJECT (ADCP) GORAKSHA**

Implementing Agency	:	Department of Animal Husbandry, Kerala
Project Name	:	ADCP in designated as 'GORAKSHA' and the project administration is named as 'Goraksha Mission'
Project Period	:	Five years with assistance of National Dairy Development Board (NDDB) (2004-2008); thereafter the project is proposed to be continued with its own funds.
Area of jurisdiction	:	Entire state of Kerala
Date of launching	:	October 1 <sup>st</sup> 2004
The Project	:	'Goraksha' is a comprehensive project, with the basic mission of making livestock in Kerala disease free for the economic gain of farmers through productivity enhancement and international trade, as well as ensuring human safety.

### **OBJECTIVES OF THE PROJECT**

- To control the incidence of Foot and Mouth Disease in the State gradually resorting to a combination of activities like mass vaccination, animal movement control, outbreak management, continuous sero monitoring, education of farmers etc.

- To undertake epidemiological studies and disease surveillance in the state.
- Training of Technicians in the state in various aspects of disease control.
- Create/Strengthen disease diagnostic facilities in the state.

#### **PROJECT COMPONENTS**

- Mass vaccination
- Animal Movement Management
- Outbreak Management
- Sero Monitoring
- Epidemiological Surveillance Studies
- Legal Support
- Extension and Publicity
- Human Resource Development
- Information Network

#### **SPECIAL LIVESTOCK BREEDING PROGRAMME -SLBP**

Calf feed subsidy programme (CFSS) under Special Livestock Breeding Programme (SLBP) has been implemented by Animal Husbandry Department since 1976 to increase productivity in the dairy sector is giving excellent results. It is being implemented through the local bodies from 1997 onwards. The objectives of CFSS scheme is to provide extension support, adequate health and Insurance coverage and good quality feed at subsidized price to the growing Cross Bred Female Calves of below poverty line farmers for a period of 28 months or till its first calving whichever is earlier.

Crossbred female calves of 4-6 months age group enrolled under this scheme will be given feed and insurance coverage at subsidized rate till calving or till 32 months whichever is earlier. The scheme envisages scientific calf rearing programme through scientific feeding management and disease control measures. Through field level extension and monitoring programmes will further augment productivity in the dairying sector of the state.

#### **Objectives**

Reducing the age at first calving of crossbred heifers is the major objective. Usually heifers attain puberty beyond 2 years. Through scientific feeding and management practices it can be reduced to 15-18 months. Age at first calving can be reduced to below 2.5 years thus making dairying more profitable. Scientific feeding, management, fodder production, disease control and awareness programme will help in achieving this goal.



## FOOD SECURITY PROGRAMMES

### Support to women self groups on food security initiatives- Rs 100 Lakh

#### Objectives

- Supply 1 milch cow and 2 goats to each beneficiary of a SHG (formed for this purpose)
- Cluster 5 members as a SHG/ unit to promote cluster farming
- Enhance milk and meat production.
- Ensure income and employment generation among women

**AREA OF IMPLEMENTATION-** All districts except Idukki and excluding panchayats coming under Kuttanad area

**BENEFICIARIES-** 5 Women will function as a SHG for this purpose

This will be considered as a basic activity group/unit within a panchayat.

**ASSISTANCE / SUBSIDY-** 50% of the project cost

#### MODE OF IMPLEMENTATION

- **Formation of SHG** - 5 selected women will function as an SHG. This will be considered as the basic activity group or unit within a panchayat.
- **Skill upgradation training** - Trainings and all other technical assistances will be given to these SHG groups.
- **Self financing-** Beneficiaries who can raise beneficiary contribution themselves need not avail bank loan

#### ACTIVITIES

- The VS/SVS shall invite application after wide publicity.
- A LSG will select beneficiaries from the applicants.
- Beneficiaries will form group/unit of 5 each for the purpose of this project
- Each beneficiary will be supplied with the one milch cow and 2 goats.
- The VS/SVS will arrange loan(if required) to beneficiaries
- Purchase of cows by a committee constituted for the purpose
- The purchase committee will consist of
  - a. Local Veterinary Surgeon/SVS
  - b. Representative of LSG
  - c. One beneficiary
- All the cows and goats should be insured under existing scheme
- Training to all beneficiaries.
- The selected beneficiaries may be trained in the latest trends of dairying and goat rearing by the Veterinarian of the panchayat.
- The beneficiary should be provided with a milch cow in not more than second lactation and 2 milch goats
- The cows purchased should have good dairy characters and the minimum milk yield in early lactation should not be less than 15 litres.
- The beneficiary should rear the calves as replacement stock for his farm for future expansion programmes.

## **CATTLE INSURANCE SCHEME OF DEPARTMENT – GOSURAKSHA**

Cattle Insurance Scheme of Department – GOSURAKSHA provides protection for the income generating cross bred assets of dairy farmers. Cross bred cows in the production age groups of 2 to 10 years are included in the insurance scheme. Death and permanent total disability due to diseases or accident is covered in this scheme. 50% of the premium is subsidised and the premium rate is 1.75% of the cost of the animal for 1 year followed by 4.47% of the cost of the animal for 3 years. This will encourage the farmers to continue in the profession. The scheme is being implemented by M/s Oriental Insurance Company Ltd. Provision for a tagging fee of ` 50/- per animal for the veterinarian is enclosed in this scheme and in the even of death of an animals ` 100/- will be given to the Veterinarian for conducting a post-mortem in order to find out the cause of death of the animal.

## **MASTITIS CONTROL PROGRAMMES**

Mastitis is one of the major condition in dairy animals which causes heavy loss to farmers by way of loss of animals, production loss and if restore to normal production it takes considerable period of time. This disease can be controlled to a certain extend by proper milking practices, proper sanitation and early detection of the disease. Facility to detect the condition in the farmer's premises will be of great significance in the control of the disease.. The effectiveness of treatment depends on the early detection and timely treatment.

The programme has 6 components

- 1. Floor cleaners** - Floor cleaners containing glutaraldehyde / di hydroxy dioxihexane will be supplied to farmers through local Veterinary institutions.
- 2. Teat dips** - Dipping of teat before and immediately after milking with Povidone Iodine reduces the incidence of the condition and more effective in control of the condition.
- 3. Dry cow therapy** - Infusion of long acting antibiotics especially when the cow is drying off will reduce the incidence of Mastitis. Intra mammary infusion with such drugs will reduce the incidence before drying off and also at the start of lactation in next calving.
- 4. Trisodium citrate therapy**- Treatment of mastitis positive animals with Tri sodium citrate @ 30mg/Kg body weight for five days has given good results in control of Mastitis.
- 5. Publicity** - Posters, leaf lets will be distributed through local Veterinary institutions for educating farmers. Publicity through electronic and print media will also be taken up.
- 6. Training**- 2000 elite dairy farmers will be trained for a day on scientific milking practices and production of quality milk through hygienic udder management and milking. An amount of Rs 200 per trainee will be provided as training allowance.

### **Animal Welfare club in Schools**

Animal welfare club will be organized in 100 selected schools. It is an ongoing well appreciated scheme. The objective of the programme is to develop love and sympathy towards animals and for developing habit of earning to students. The animal welfare club of the school shall be formed with the co-operation of PTA of the School. The member students will be provided with birds, small animals like rabbit etc including cages. The income from these units will be shared by PTA and by the active members of the club.

**Kerala XVIII Quinquennial Census 2007**

**Schedule I - Livestock Report**

**Total Livestock**

State/District	Cattle	Buffaloes	Sheep	Goats	Pigs	Other Livestocks	Total
1	2	3	4	5	6	7	8
<b>Thiruvananthapuram</b>	148385	2755	0	188612	1528	5	341285
Rural	138347	2157	0	182258	1217	5	323984
Urban	10038	598	0	6354	311	0	17301
<b>Kollam</b>	124390	4475	0	125905	1003	0	255773
Rural	115910	4333	0	119146	906	0	240295
Urban	8480	142	0	6759	97	0	15478
<b>Pathanamthitta</b>	98325	856	0	88054	908	0	188143
Rural	96378	687	0	85371	781	0	183217
Urban	1947	169	0	2683	127	0	4926
<b>Alappuzha</b>	78045	3070	0	76957	585	0	158657
Rural	67727	2881	0	71695	472	0	142775
Urban	10318	189	0	5262	113	0	15882
<b>Kottayam</b>	122593	1921	0	124442	9054	1	258011
Rural	118077	1842	0	122274	8454	1	250648
Urban	4516	79	0	2168	600	0	7363
<b>Idukki</b>	157601	2713	20	140723	18040	1	319098
Rural	153998	2652	20	139563	17743	1	313977
Urban	3603	61	0	1160	297	0	5121
<b>Ernakulam</b>	154984	5111	0	166672	5565	5	332337
Rural	139042	4689	0	157051	5208	3	305993
Urban	15942	422	0	9621	357	2	26344
<b>Thrissur</b>	134669	8102	6	170263	7615	20	320675
Rural	121009	7431	4	159472	6879	3	294798
Urban	13660	671	2	10791	736	17	25877
<b>Palakkad</b>	215095	6871	131	101829	1842	39	325807
Rural	206527	6520	119	97644	1651	37	312498
Urban	8568	351	12	4185	191	2	13309
<b>Malappuram</b>	105329	13532	257	248403	2401	2	369924
Rural	101635	12925	257	234803	2363	2	351985
Urban	3694	607	0	13600	38	0	17939
<b>Kozhikode</b>	133494	1495	0	86925	2509	0	224423
Rural	128373	1421	0	83829	2312	0	215935
Urban	5121	74	0	3096	197	0	8488
<b>Kannur</b>	119144	733	0	88941	4031	2	212851
Rural	109482	670	0	86579	4004	2	200737
Urban	9662	63	0	2362	27	0	12114
<b>Wayanad</b>	65459	2880	190	75375	2196	6	146106
Rural	64102	2774	190	74447	2062	6	143581
Urban	1357	106	0	928	134	0	2525
<b>Kasargod</b>	82604	3631	361	46026	1740	0	134362
Rural	80354	3223	361	44343	1255	0	129536
Urban	2250	408	0	1683	485	0	4826
<b>Kerala</b>	<b>1740117</b>	<b>58145</b>	<b>965</b>	<b>1729127</b>	<b>59017</b>	<b>81</b>	<b>3587452</b>
Rural	<b>1640961</b>	<b>54205</b>	<b>951</b>	<b>1658475</b>	<b>55307</b>	<b>60</b>	<b>3409959</b>
Urban	<b>99156</b>	<b>3940</b>	<b>14</b>	<b>70652</b>	<b>3710</b>	<b>21</b>	<b>177493</b>

**PRODUCTION OF MILK & EGG**

Year	Milk (lakh MT)	Egg (Billions)
2005-06	20.63	119.56
2006-07	21.18	119.87
2007-08	22.48	137.92
2008-09	22.50	150.66
2009-10	25.01	161.05

**PER CAPITA PER DAY AVAILABILITY OF MILK**

Year	Cow Milk(g)	Buffalo Milk(g)	Goat Milk(g)	Total Milk(g)	Projected human Population(lakhs)
2005-06	160	3	7	170	333
2006-07	163	2	7	172	336
2007-08	171	2	7	180	340
2008-09	185	3	8	196	342
2009-10	187	4	10	201	346

**PER CAPITA AVAILABILITY & CONSUMPTION OF EGG PER YEAR**

Year	Projected human population (lakhs)	Total Egg Production (Millions)	Per Capita Availability per year (Nos.)	Import (Millions)	Export (Millions)	Total availability (Millions) (Nos.)	Per Capita consumption per year
2005-06	333	1196	36	968	3.8	2160.2	64
2006-07	336	1199	36	1044	nil	2243	61
2007-08	340	1379	40	1009	9	2379	70
2008-09	342	1507	44	1070	12	2565	75
2009-10	346	1566	44	1084	1	2649	77

**PER CAPITA PER DAY AVAILABILITY OF MEAT**

Year	Projected human population (lakhs)	Production of Meat (Authorised Sector only) (MT)		Per capita availability per day (g) #		
		Animal	Poultry	Animal	Poultry	Total
2006-07	336	59997	16184	16.3	1.32	17.62
2007-08	340	60193	17390	14.53	1.4	15.95
2008-09	342	110347	13749	26.52	1.1	27.62
2009-10	346	102027	15482	-	-	-

# The per capita availability has been worked out on the assumption that two third of the Meat production is in the unauthorised sector.

**CALVING INDEX FOR COWS**

Date of Service											
1	1	1	1	1	1	1	1	1	1	1	1
Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
7	7	5	5	4	4	6	7	7	7	7	6
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.

Note: The number of days added to both dates will give the expected delivery date. eg. Date of service if 10th Jan. expected delivery date would be 17th of October.

**FEEDING SCHEDULE OF ANIMALS**

**I. COWS**

**(i) Milking cows : (Approximate body weight - 250 kg.)**

	When grass is available in plenty		When pady straw is the major roughage		
	Concentrate Mixture (kg.)	Green grass (kg.)	Concentrate Mixture (kg.)	Green grass (kg.)	Straw (kg.)
Dry Cows		25-30	1.25	5.0	5-6
Milking Animals	1-1.5kg for every 2.5 to 3 kg. Milk	30	1.25 + 1kg for every 2.5 to 3 kg. of Milk	5.0	5-6
Pregnant animals	Production allowance 1 kg to 1.5kg from 6th month of pregnancy	25-30	Maintenance(5.0kg)+ Production allowance 1kg to 1.5kg. from 6th month of pregnancy	5.0	5-6

For every additional 50 Kg. body weight 250 g of concentrate mixture and 0.5 to 1 kg straw may be fed extra, or 3 to 5 kg green grass (green fodder) should be offered 3 to 4 times a day.

**(ii) CALVES (upto 6 months)**

	<i>Body weight (kg)</i>	<i>Qty. of milk (kg)</i>	<i>Qty. of calf starter (g)</i>	<i>Green grass (kg)</i>
4 days to 4 weeks	25	2.5	Small qty.	Small qty.
4-6 weeks	30	3.0	50 to 100	-do-
6-8 weeks	35	2.5	100 to 250	-do-
8-10 weeks	40	2.0	250 to 350	-do-
10-12 weeks	45	1.5	350 to 500	1.00
12-16 weeks	55		500 to 750	1-2
16-20 weeks	65		750 to 1000	2-3
20-24 weeks	75		1000 to 1250	3-5

Calf starter is a concentrate mixture containing all nutrients in proper proportions, used as substitute for whole milk in calf ration.

The quantities of feed shown above have been calculated for animals gaining weight on an average of 300-400 g per day.

**(iii) FOR GROWING ANIMALS (from 6 months onwards)**

<i>Age (Months)</i>	<i>Appro. body weight (kg)</i>	<i>Concentrate mixture (kg)</i>	<i>Grass (kg)</i>
6 to 9 months	70 to 100	1.25 - 1.75	5 - 10
9 to 15 months	100 to 150	1.75 - 2.25	10 - 15
15 to 20 months	150 to 200	2.25 to 2.50	15 - 20
above 20 months	200 to 300	2.50 - 2.75	15 - 20

**II. BUFFALOES**

General principles of feeding buffaloes are almost similar to those recommended for dairy cattle. Buffaloes have the capacity to consume more roughage which they can digest better than dairy cattle. The fat percentage of buffalo milk is higher and hence buffaloes must be given more feed per unit of milk production. Milking animals must be given production allowance of one kg concentrate mixture (0.14 to 0.16 kg DCP and 0.7 kg TDN) for every 2 kg of milk produced over and above the maintenance allowances.

### III. GOATS

#### (i) Growing Animals (from 6 months onwards)

Category of goat	Approximate body weight (kg)	Quantity to be fed per day	
		Concentrate (g)	Green fodder (kg)
Growing (6-12 months)	15-20	300-400	1-2
Adult goats	25-30	200-300	2-3
Breeding bucks	30-40	400-500	3-5

#### (ii) Kids of different age

Age of the kid	Approximate body weight (kg)	Quantity of milk to be given (g)	Quantity of kid starter to be given (g)	Quantity of green fodder to be given (g)
Birth to 4 days	1.5-2.0	Colostrum	-	-
5-30 days	2-3	300-500	Small quantity	Small Qty.
30-60 days	3.0-5.0	400-500	50-100	Small Qty.
60-90 days	5.0-7.5	350-400	100-150	250-500
90-120 days	7.5-10.0	-	200-250	500-750
5th & 6th months	10.0-15.0	-	250-300	750-1000

### IV. DOGS

Pups are weaned from the dam at 6-8 weeks of age. After weaning, a combination of cow's milk (250 ml), egg yolk (one) and glucose (half teaspoon) fed at regular intervals would be a good substitute for the dam's milk. Goat's milk is good for pups.

For two to three days after weaning, the pups will be crying, may be because of the separation from its dam. This crying should not be misunderstood for hunger and fed with milk and biscuits as often done resulting in indigestion.

#### Feeding schedule

1-2 months	-	6 times
2-3 months	-	5 times
3-4 months	-	4 times
4-5 months	-	3 times
5-7 months	-	2 times

### V. CATS

Cats are carnivorous in nature. Feed should be rich in protein of animal or fish origin. Either raw or cooked meat can be fed. Sometimes there may be digestive trouble. Also provide vegetables, green grass etc. to avoid digestive trouble. Green grass helps to expel fur balls from the stomach. Grass will be having vitamins and minerals especially trace minerals and so grass feeding is advantageous. Cat should be given plenty of drinking water.

**Feeding frequency :**

2-3 months	-	4 meals/day
3-5 months	-	3 meals/day
6-8 months	-	2 meals/day
Adult	-	2 meals/day

**VI. BROILER RATION**

Ingredient	Percentage inclusion	
	Starter (0-5 weeks)	Finisher (6-7 weeks)
Yellow Maize	47	54.5
Rice polish	8	10
Soyabean meal	17.5	14
Groundnut cake (expeller)	15	11
Unsalted dried fish	10	8
Mineral mixture	2.0	2.0
Salt	0.5	0.5
	<b>100.00</b>	<b>100.00</b>
For 100 kg of feed add:		
Vitamin A	6,00,000 IU	6,00,000 IU
Vitamin B <sub>2</sub>	600 mg	600 mg
Vitamin D <sub>3</sub>	60,000 ICU	60,000 ICU
Cocciostat	50 g	50 g
Lysine	50 g	50 g

Alternatively commercial broiler starter and finisher rations prepared by reputed feed manufacturers can be given.

**VII. DUCK LAYER RATION**

Sl.No.	Ingredients	Per cent
1	Yellowmaize	42
2	Ricepolish	20
3	Gingelly oil cake	7
4	Soyabean meal	14
5	Dried fish	10
6	Oyester shell	5
7	Mineral Mixture	1.75
8	Salt	0.25
		<b>100.00</b>

For every 100kg add vitamin mixture (Vit.A 600,000 IU, Vit.B<sub>2</sub>600mg and Vit.D<sub>3</sub> 60,000 ICU and nicotinic acid 5g.)



### VIII. RABBITS

Item	Approximate body weight	Quantity to be fed per day	
		Concentrates	Green grass
Bucks	4-5 kg	150 g	600 g
Does	4-5 kg	150 g	600 g
Lactating does	-	200 g	700 g
Weaner (6 weeks)	600-700 g	50 g	200 g

### VACCINATION SCHEDULE FOR ANIMALS

#### I. LIVESTOCK

Disease	Type of Vaccine	Dose and Route	Remarks
Anthrax	Anthrax Spore Vaccine I.A.H & V.B., Palode	Cattle 2 ml S/C, Sheep & Goat 1 ml S/C	Annual revaccination in endemic areas
Black Quarter	BQ Vaccine, I.A.H & V. B., Palode	Cattle 5-10 ml S/C, Sheep & Goat 2-3 ml S/C	Annual revaccination in endemic areas
Haemorrhagic septicaemia	HS Broth Vaccine, I.A.H & V.B., Palode HS Oil adjuvant Vaccine, IAH & VB, Palode	Cattle 5-10 ml S/C  2 ml I/M for animals upto 140 kg body wt., 3 ml for animals above 140 kg body wt.	Immunity is only for 2-3 months Immunity for 1 year, annual revaccination in endemic areas.
Foot and Mouth Disease		<u>Young Animals</u> Primary dose Booster dose  Annual Vaccination <u>Adult animals</u> First dose Annual Vaccination	<u>Schedule</u> Between 3&4 months. After 3 months of primary dose  0 days

#### II. DOGS

Disease	Primary vaccination	Booster	Repeat
Canine Parvo viral infection	6 week	11 week	Annual
Canine Distemper	8 week	11 week	Annual
Infectious Canine Hepatitis	8 week	11 week	Annual
Canine Leptospirosis	8 week	11 week	Annual
Rabies	3 months	One year	Annual
Canine Corona viral infection	9 week	---	Annual

### Rabies Control Programmes

Rabies eradication is taken up as one of the activities of the Animal Husbandry Department from the very early stage. Recently considering the huge menace of the disease in view of its economic and public health importance, the department has intensified the Rabies Eradication Programmes by setting up a special cell in the Directorate. Various programmes are arranged to enlighten the public on the importance of the control of rabies. Vaccination camps are arranged throughout the state seeking assistance of local bodies and the non-governmental agencies like Rotary Club, Lions Club etc.

#### Anti Rabic Vaccinations done in Kerala 2002-2009

Year	Post exposure vaccinations					Total	Prophylactic vaccination in Dogs
	Cattle	Buffalo	Goat	Dog	Others		
2004-05	2062	68	2231	1956	33	6350	1,12,917
2005-06	2131	57	2310	2628	37	7163	1,09,013
2006-07	2689	95	4324	3132	71	10311	1,96,662
2007-08	2174	143	4958	4627	710	12612	1,73,169
2008-09	1646	92	4030	29920	48	35736	1,71,619

#### POULTRY- LAYER

Age	Disease	Vaccine	Route
1. 1 day	Marek's	HVT vaccine	I/M
2. 5-7 days	RD	Lasota/F	Occulonasal
3. 10-14 days	IBD	IBD Live	Drinking water
4. 24-28 days	IBD	IBD Live	Drinking water
5. 8 <sup>th</sup> week	RD	R <sub>2</sub> B/RDVK	S/C
6. 16-18 week	RD	Killed/Live	S/C

- i. It is advisable to administer Fowl pox vaccine at 6 weeks of age in endemic areas.
- ii. EDS vaccine is advised at 16-18 weeks of age

#### Source of Vaccine

1. Institute of Animal Health and Veterinary Biologicals, Palode, Thiruvananthapuram.
2. I.V.P.M, Ranipet, Tamil Nadu.
3. I.V.R.I Izatnagar, Bareilly, U.P.

Poultry vaccines are also manufactured by private sector companies.

Give anti-stress medicaments to combat vaccination stress in consultation with a veterinarian.

## DEWORMING SCHEDULE

### I. BIRDS

Birds should be dewormed starting from one week prior to R<sub>2</sub>B/RDVK vaccination and repeated at 3 week intervals so as to give a total of 4 dewormings before housing at 18 weeks of age. Piperazine compounds, Albendazole, Mebendazole etc. can be used against round worms. Against tape worms, Niclosamide, Praziquintel, Albendazole can be used.

### II. CATTLE

First dose is given at 2-4 weeks with Piperazine @ 150 mg/kg bwt. Repeat at 6th week. From 10 weeks upto 6 months of age, any broad spectrum anthelmintic can be used at monthly intervals. After 6 months of age, on examination of the dung sample, the animal shall be dewormed according to necessity.

- Note:
1. If the animals are suffering from cestodes/trematodes drugs concerned have to be given after proper diagnosis.
  2. During pregnancy, dosing with any broad spectrum anthelmintic helps in reducing parasitic infestation in young calves as well as increasing the milk production in that lactation.

### Nutritive value of different types of meat

Species	Water %	Protein %	Fat %	Ash %	Cal/100 g	Cholesterol mg/100g
Beef	66.6	20.2	12.3	0.8	197	60-80
Pork	56.5	15.9	26.6	1.2	308	60-80
Mutton	64.8	17.8	16.2	1.2	222	60-80
Chicken	67.7	20.0	6-15	0.9	202	60-80
Rabbit	72.9	20.8	1-2	0.9	199	50

### Incubation period, age at maturity and average egg production in birds

Type of bird	Incubation period (days)	Age at maturity (months)	No. of Eggs (Annually)
Fowl	21	6	150-200
Duck	28	7	200-300
Turkey	28	10-11	25-70
Guinea fowl	28	9	50
Goose	30	10-11	24-50
Pea Fowl	18	12	15
Pigeon	18	9	2 in a brood (2-3 broods annually)

## **DEPARTMENT OF DAIRY DEVELOPMENT**

The Department of dairy development in Kerala came into existence in 1962 with the prime objective of augmenting milk production and consumption in the state. The major activities to augment milk production include rural dairy extension and advisory services, Organization of Dairy co-operatives, Strengthening of Dairy co-operatives in the state, Fodder development programmes, Milk Shed Development programme and Cattle feed subsidy scheme besides the statutory functions under the Kerala Co-operative Societies act, 1969. At the consumption part, various quality control activities, milk products manufacturing programmes and quality control awareness measures laid down under the statutory provisions of Milk and Milk Products Regulations under the Essential Commodities Act are also carried out by the department.

### **1. RURAL DAIRY EXTENSION & ADVISORY SERVICES**

The objective of this programme is to upgrade the knowledge of dairy farmers so as to adopt modern, scientific practices in dairying, optimize cattle feeding practices, reduce intercalving period, etc. The components are seminars, cattle shows, farmers contact programmes, quality awareness programmes, consumer interface programmes, training of farmers/women at the Dairy Training Centres and refresher training programmes to department staff, Regional Dairy Seminars, World Milk Day celebration, contingency fund for giving financial support to dairy farmers in case of unexpected losses incurred by them, provision for conducting Exposure visits for farmers/DCS personnel, publishing Department Newsletter, Student's Dairy Club, best Dairy Farmer Award to those who pour highest quantity of milk in the DCS etc.

### **2. REGISTRATION OF DAIRY CO-OPERATIVES**

The Director of dairy Development is the Registrar of dairy co-operative societies in the state. As on 31-06-2011, 3518 (3034 APCOS and 484 Traditional) Primary Dairy Cooperatives, three Regional Milk Unions and one Apex Milk Marketing Federation ('Milma') are under the Administrative supervision of this department. New primary dairy co-operatives can be registered with an area of operation, not more than two wards of a Grama Panchayath where no overlapping of area of similar societies exists. A marketable surplus of milk for the viable functioning of the new society is to be ensured. A minimum of 25 individuals from different families must be there. Application is to be submitted to the concerned district level office.

### **3. FODDER DEVELOPMENT PROGRAMME**

Dairy development department is the nodal agency for fodder development activities in the state. The programme provides a platform for assisting farmers/societies/SHGs/organizations etc for cultivating fodder in the state. Vegetative planting material of high yielding perennial fodder crops like Hybrid Napier, Guinea, Congo Signal etc are supplied free of cost and providing cultivation assistance to beneficiaries. Seeds of short term fodder crops like Maize, Cow pea, Sorghum etc are also distributed. The department is also providing assistance for popularizing Azolla cultivation and fodder tree cultivation in the state. Assistance will also be provided for Mechanization of fodder cultivation & harvesting and Irrigation facilities. Establishing Koyippuram model massive fodder cultivation, conducting

fodder Exhibitions and workshop, Fodder Day celebrations etc are also included in the fodder development programme. A fodder farm is functioning at Valiyathura, Thiruvananthapuram under the department which utilizes the city sewage for irrigating fodder fields and sells green fodder to dairy farmers in the district @ ` 1.20 per Kg from the farm.

#### **4. MILK SHED DEVELOPMENT PROGRAMME**

This programme is designed to increase milk production and to generate rural employment in the state. The scheme is implemented throughout the state. Since 2007-08, this has been an ongoing scheme for the department. Selected beneficiaries will be assisted for the purchase of single cow, two cows, five cows, ten cows and twenty cow dairy unit with subsidy and bank finance. During the year 2011-12, the total plan fund earmarked for the MSDP scheme is ` 640 Lakhs. The major components are Single Cow-*Godanam*, two cows, five cows, ten cows and twenty cows dairy units, Heifer rearing units, Need based assistance to progressive dairy farmers, assistance for the purchase of milking machine etc.

#### **5. CATTLE FEED SUBSIDY SCHEME**

The project aims to subsidize the milk production cost by meeting ` 2/- for every one kg of cattle feed purchased by the producer from the Dairy co-operatives in the state based on the quantity of milk poured to the society and to enhance milk production, procurement in lean / summer season. All the milk producers in the state covered by Dairy Co-operative Societies are benefited through the scheme for sustainable milk production.

#### **6. ASSISTANCE TO DAIRY CO-OPERATIVE SOCIETIES**

Dairy Co-operative Societies of our state act as the back bone of dairy development sector, which help dairy farmers to market their produce and act as village information Centres. More than 70 % of our dairy farmers are outside the umbrella of Dairy Co-operative Societies. In order to bring these 70 % dairy farmers under the umbrella of Dairy Co-operative Societies, it is inevitable to strengthen the Dairy Co-operative Societies of our state. Major objectives of the scheme are to improve the facilities for testing the chemical and microbial quality of milk to ensure that the consumers get good quality product and the producers get better price for what they produce, to improve the procurement and marketing facilities by strengthening the existing Dairy Co-operatives and to modernize the infrastructure of Dairy Co-operative Societies for better dissemination of information to farmers by using ICT tools and techniques. Giving operational assistance to newly registered societies, assistance for revival of defunct Dairy Co-operative Societies, Assistance for the purchase of chemicals, glass wares, purchase or repair of lab equipments, machines etc. , assistance to construct or renovate milk collection room for the hygienic milk collection/ storage room for storing cattle feed, milk, milk products etc. ,giving assistance to Dairy Co-operative Societies according to their need etc. are included in the scheme.

#### **7. STRENGTHENING OF QUALITY CONTROL UNITS**

One of the major activities of the Dairy Development department is ensuring quality of milk and milk products produced and marketed in the State. The Department has a quality control officer in all

districts to monitor the quality of milk marketed in the districts, and to provide extension support for clean and hygienic milk production by dairy farmers. The department has quality control labs one in each district headed by a Quality Control Officer. The above programme is meant to strengthen the Quality Control activities of the department .

During festival seasons, especially during Onam, the demand for milk in the state increases and lot of milk reaches from neighboring states. Unscrupulous traders take this as an opportunity to make huge profit by supplying low quality and adulterated milk. This is a major threat to public health as many of the chemicals added to milk as adulterants or preservatives are hazardous. In order to prevent such practices special quality testing drives are conducted through out the state during Onam season. Milk Quality Information Centers are set up in all districts head quarters where the quality of all brands of milk marketed is tested. Facilities are also provided for daily testing samples of milk brought by public and providing results then and there.

To prevent the entry of adulterated and low quality milk into the state special camps with laboratory facilities are set up at the five major check post (Walayar, Meenakshipuram, Kumuli, Arayankavu, and Parasala) of the state through which majority of the milk flows into the state.

#### **QUALITY CONTROL ACTIVITES FOR MILK AND MILK PRODUCTS**

The department of Animal Husbandry and Dairying, Ministry of Agriculture, Government of India promulgated the Milk and Milk Products Order, 1992 on 09-06-1992 after the announcement of the new industrial policy in July, 1991. The Central Government made this order exercising the powers conferred by Section 3 of the Essential Commodities Act, 1955 with a view to maintain and increase the supply of milk of desired quality.

Under the Milk & Milk Products Order,1992, No person or manufacturer shall set up a new plant or expand the capacity of the existing plant without obtaining registration/permission from the concerned registering authority. The terms and conditions for registration under this order covers sanitary, hygienic conditions, quality and food safety as specified in the V schedule. This provision was made applicable for business handling < 10,000 LPD also.

The Director of Dairy Development was the State Registering Authority of dairies in the State till 4<sup>th</sup> August 2011. The plant set up shall not be allowed to be commissioned unless an inspection has been carried out to ascertain the sanitary and hygienic conditions as specified in the Schedule V. The Director had delegated the powers to District officers and Quality Control Officers to take samples and initiate suitable actions under MMPO, 1992. The statutory samples drawn by the Quality Control Officers were send for analysis to the sate Dairy Laboratory at Alathur, which is a recognized laboratory under MMPO for testing of Milk and Milk products. Since all the Technical Officers of the department are qualified Dairy Technologists, implementation of MMPO, 1992 was successful in the State. The Technical cell functioning at the Directorate of Dairy Development and District level Officers conduct periodic inspections in all dairies in the State and directs to rectify the defects if any.

With effect from August 5<sup>th</sup>, 2011 the Govt. of India has introduced a new legislation, Food Safety and Standards Act 2006. MMPO-92 has been amended and included under the Food Safety and Standards Act 2006. The Act specifies the establishment of Food Safety and Standards Authority of India for monitoring the manufacture, storage, distribution, sale and import of food so as to ensure availability of safe and wholesome food for human consumption. The state level authority for

implementation of the Act shall be the Food Safety Commissioner. The Commissioner shall delegate powers to Designated Officers (at district level), Food safety officers and Food analysts. The Department of Dairy Development has been authorized to check the quality of milk and milk products by the Food Safety Commissioner of Kerala during Onam special quality drive programme.

The department has a full fledged MMPO recognized laboratory at Alathur, Palakkad. The lab offers statutory testing facilities for both chemical and microbiological analysis of milk and milk products. From 2010 onwards the department has a State Dairy Laboratory functioning at Trivandrum. It occupies state of art imported machineries to cater the various microbiological and chemical analysis of milk and milk products. Pathogen screening, aflatoxin analysis, pesticide residue detection and fatty acid profiling are some of the facilities available at this laboratory.

#### TESTS FOR COMMON ADULTERANTS IN MILK

##### CANE SUGAR

1. Take 10ml. of milk in a test tube
2. Add. 1ml. of conc. HCl and mix
3. Add 0.1 g of resorcinol powder and mix thoroughly
4. Place the tube in a boiling water bath (or over a direct flame) for five minutes and observe the colour.

*Resorcinol produces red colour solution with sucrose in acidic media.*

##### STARCH

1. Take about 3ml of well mixed milk sample in a test tube.
2. Boil the milk over a bunsen burner.
3. Cool and add one drop of 1% Iodine solution and observe the colour.

*Starch and cereal flours added to milk give blue colour with iodine solution.*

##### SKIM MILK POWDER

1. Take 50ml of milk in each of two centrifuge tubes and balance properly.
2. Centrifuge at 3000 rpm for 30 seconds
3. Decant the supernatant liquid carefully
4. Dissolve the residue in 2.5 ml of conc. HNO<sub>3</sub>
5. Dilute the solution with 5 ml of water
6. Add 2.5ml of liquid Ammonia and observe

*Skim milk powder being highly proteinaceous in nature gives orange colour. Unadulterated milk gives yellow colour.*

#### STANDARDS FOR DIFFERENT CLASSES AND DESIGNATIONS OF MILK AND MILK PRODUCTS UNDER PREVENTION OF FOOD ADULTERATION ACT

Class of Milk	Designation	Locality	Minimum %	
			FAT	SNF
<b>A. MILK</b>				
Standardised Milk	Raw, Pasteurised, Boiled	All India	4.5	8.5
Recombined Milk	-do-	All India	3	8.5
Toned Milk	-do-	All India	3	8.5

Double toned Milk	-do-	All India	1.5	9.0
Skimmed Milk	-do-	All India *	0.5	8.7
Cow Milk	-do-	Kerala	3.5	8.5
Buffalo Milk	-do-	Kerala	5.0	9.0
Goat Milk	-do-	Kerala	3.5	9.0

\* not more than

## B. PRODUCTS

Cream	Milk fat 25% minimum
Curd	Fat & S.N.F as the milk from which it is prepared.
Channa	Moisture 70% max. Fat 50% of dry matter minimum
Skim milk channa	Moisture 70% max. Fat 13% of dry matter minimum
Cheese (Hard)	Moisture 43% max. Fat 42% of D.M. Stabiliser/emulsifier/Nisin 0.1%
Processed Cheese	Moisture 47% max. Fat 40% of D.M mini. Salt 3% max. Stabiliser/Emulsifier 4% Sorbic Acid 0.1 or Nisin 0.1%
Ice Cream	Fat 10% min. (8% min. If contains fruit & nuts) Protein 3.5% min T.S 36% min. Stabiliser/emlsi T.S 36% min Emulsifier/Stabiliser 0.5% max
Milk ices/Lollies	Fat 2% max. Protein 3.5% min. T.S. 20% min. Stabiliser/emulsifier 0.5% max.
Condensed Milk Unsweetened	Fat 8% min.
Evaporated Milk	Total Milk Solids 26% min.
Condensed Milk Sweetened	Fat 9% min. Total Milk Solids 31% min. Cane Sugar 40% min.
Condensed Skimmed Milk Unsweetened	Total Milk Solids 20% min.
Evaporated Skimmed Milk	Milk Fat not more than 0.5% by weight.
Condensed Skimmed Milk Sweetened	Total milk solids 26% min. cane sugar 40% min. Milk fat not more than 0.5% by weight
Whole Milk Powder	Fat 26%, acidity 1.2%, L.A. Max., solubility 98.5%(Spray) 85%(Roller)., S.Index 2.0ml(Spray)&15.0ml(roller). Moisture 5% max. BHA 0.01%. Coliform 90/gm. S.P.C. 50000g Sod. Citrate 0.3%
Skimmed Milk Powder	Milk Fat 1.5% max. Moisture 5% max. Acidity 1.5% max. Sod. Citrate 0.3% S.P.C 50000/gm Coliform 90/gm
Solubility percent	Roller dried : 85 Spray Dried : 98.5
Solubility Index	-do- : 15.0ml -do- : 2.0ml
Partially Skimmed Milk Powder	Moisture 5% max. Fat between 1.6 and 24%. Acidity 1.5% L.A. max.



Solubility percent	Sod. Citrate 0.3% B.H.A 0.01%
Solubility Index	Roller dried : 85 Spray Dried 98.5
Khoa	-do- 15.0ml -do- 2.0ml
Table Butter	Moisture 28% max. Fat 20% min.
	Fat 80% min. Salt 3% max. Curd 1.5% min. Diacetyl 4 ppm max.
Deshi Butter (cooking)	Fat 76% min.
Ghee	Butyro-refractometer 40 to 43 reading at 40°C. Minimum reichert value 28.0% of free fatty acids as 3.0 oleic acid (max. limit). % of moisture(max. limit) 0.5.
Infant Milk Food	Moisture 5% max. Fat 18%(min). 28%(max). Total Carbohydrates 35%(min) Milk Proteins 20%(min). Ash 8.5%(max) S.P.C 50000/gm. S.I. 2.0ml (Spray).
Soy-whey Food	Fat 12%. Protein 23%, Carbohydrate 50.5%, Ash 5.0%, Moisture 1.5% fortification with vitamins & iron.
Coffee Complete	Instant coffee 7.2% S.N.F. 20.0%, Sugar 39.0%, Water 25.0%, Total solids 75.0%. Milk fat 8.5%.
Tea Complete	Fat 13%. S.N.F 31.5%, Sugar 39.5%, Tea solids 14.0% Moisture 2.0%

#### MICROBIOLOGICAL STANDARDS FOR MILK

	Bacteriological Quality/Grade				
	Very Good	Good	Fair	Poor	Very Poor
Direct microscopic Count(DMC) Count per ml.	—	<5,00,000	5,00,001 - 4,000,000	4,000,001- 20,000,000	>20,000,000
Standard Plate Count (SPC) Count per ml.	<2,00,000	2,00,001- 1,000,000	1,000,001- 5,000,000	>5,000,000	—
Methylene Blue Reduction Time	5 and above	3 and 4	1 and 2	½ and below	

### KERALA DAIRY FARMERS' WELFARE FUND BOARD

Kerala Dairy Farmers welfare Scheme introduced by the Government of Kerala aimed at providing welfare measures to the dairy farmers who supply milk dairy co-operatives. The eligibility to get a pension of ` 300 per month is restricted to members who attain an age of 60 years and supply milk to primary dairy co-operatives at a quantum of 500 litres per year for a minimum period of 5 years. On the event of death of the pensioner, his wife or unmarried minor daughter is eligible to get a family pension of ` 150 per month. An amount of 25 paise per litre of milk procured by the dairy co-operatives will be levied for the scheme. The scheme is being implemented by the Kerala Dairy Farmers' Welfare Fund Board with the existing manpower of the department without any additional expenditure. The funds for the board are raised from the contributions received from farmers, primary dairy co-operatives, regional milk unions/KCMMF and Government.

#### NO: OF DAIRY CO-OPERATIVE SOCIETIES REGISTERED

(As on 30.06. 2011)

REGION	DISTRICT	DAIRY CO-OPERATIVE SOCIETIES		
		APCOS	TRADITIONAL	TOTAL
Trivandrum	Trivandrum	332	81	413
	Kollam	270	64	334
	Pathanamthitta	188	16	204
	Alappuzha	243	26	269
Ernakulam	Kottayam	230	32	262
	Idukki	183	19	202
	Ernakulam	327	19	346
	Trichur	215	69	284
Malabar	Palakkad	297	23	320
	Malappuram	214	33	247
	Kozhikode	212	31	243
	Wayanad	53	2	55
	Kannur	152	61	213
	Kasaragod	118	8	126
<b>Total</b>		<b>3034</b>	<b>484</b>	<b>3518</b>

## FODDER CROPS AND CULTIVATION PRACTICES

Activity	Hybrid Napier	Guinea grass	Congo Signal	Fodder Maize	Fodder Cowpea	Stylosanthes
1	2	3	4	5	6	7
1. Suitable Location	Low altitude regions	Low altitude regions	Upto an altitude of 2000 m	Upto an altitude of 2000 m	Low altitude regions	Low altitude regions
2. Season	June-Sept.	June-Sept.	June-Sept.	May-June	Throughout the year	May-Sept.
3. Soil	Lateritic to Alluvium soil with good drainage	Same	Same	Same	Same	Same
4. Planting material required/ha	40,000 seedlings	69000 to 100000 rooted cuttings OR seeds 10 kg	2.5 lakhs rooted cutting OR 8 kg seeds	25-30 kg seeds	40 kg seeds	6 kg seeds
5. Spacing	50 x 50 cm	40 x 40 cm	20 x 20 cm	70 x 15 cm	30 x 30 cm	30 x 30 cm
6. Organic Manure (tons/ha)	15-20	15-20	15-20	15	10	10
7. Basal dose of P <sub>2</sub> O <sub>5</sub> per ha.	40 kg	60 kg	60 kg	40 kg	30 kg	40 kg
8. Top dressing	Apply 30 kg N/ha. or cowdung slurry after 2 <sup>nd</sup> harvest. Repeat atleast 3 times in a year	Same	Same	Apply 66 kg N 30 DAS and at 60 DAS	--	--
9. Harvest	60-70 Days After Planting and then at 45 days interval	50-60 Days After Planting and then at 40 days interval	60-70 Days After Planting and then at 45-50 days interval	90-100 days after sowing	At flowering and pod formation stage	60-80 DAS and then at 45-50 days interval
10. Average Yield (tons/ha/year)	100 - 300	70-75	40-50	40-50 (per crop)	15-20 (per crop)	30-40
11. Weeding and interculture	2-3 times	2-3 times	Once	2-3 times and earthing up at growing stage	Once	Once

**AIRPORTS / SELECTED RAILWAY STATIONS / K.S.R.T.C. STATIONS IN KERALA**

AIRPORT		Telephone Number		
<b>THIRUVANANTHAPURAM</b>				
Indian Airlines	STD No.	OFFICE	PER	RESI
Airport Enquiry & Reservation	0471	2310310	--	--
Enquiries		2501537		
Duty Officer		2501237		
Flight Enquiry		2502323		
Office		2316940		
<b>Air India</b>				
Duty Officer		2501281		2451894
Enquiry	2501426			
City Officer/Reservation	2310310			
<b>KOCHI</b>				
Airport Enquiry & Reservation	0484	2610115/2610116		
Airport Director		2610006		2534773
Air India		2610050		2351295
Indian Airlines		2610041		2371141
<b>KOZHIKODE</b>				
Airport	0483	2711325		
Director		2710517		
Offier-in-charge		2711325		
Indian Airlines		2270190		
Enquiry		2766056		
Manager		2710100		

**RAILWAY STATIONS**

	STD		Office	Per.	Resi
1. Thiruvananthapuram Central	0471	Enquiry & Reservation	131, 132		
		Station Superintendent	2326037		
		Public Relations Officer	2326037		
2. Kollam	0474	Enq. & Reservation	2746194		
3. Kottayam	0481	Enquiry	131		
		Enquiry & Reservation	2563535		
		Station Supdt.	2562933		
4. Alappuzha	0477	Enq. & Reservation	2253965		
		Station Supdt.	2253965		
5. Emakulam	0484	Enq. & Reservation	131	132	2390920
North 2393413		Station Supdt.	2369419		
Emakulam South		Enquiry (Computer)	2375131		
6. Thrissur	0487	Enq. & Reservation	2423150		
			2440251		
7. Palakkad	0491	Enquiry	2555231		
8. Nilambur	0493		2220237		
9. Kozhikode	0495	Enq. & Reservation	2703822		
		Station Supdt.	2701499		
10. Kasaragod	0499		2430200		
11. Kannur	0497	Enquiry	2705555		
12. Chengannur	0479	Enq. & Reservation	2452340		
			2454240		
13. Cherthala		Station Master	2812500		
14. Thiruvalla	0469		2601314		
15. Pathanamthitta	0468	Reservation Agency	2325676		

**DISTANCE (ROAD) - (Kilometre)**

<b>1. From Thiruvananthapuram (NH)</b>		Angamali	-	242
Attingal	-	33		
Kollam	-	71		
Kayamkulam	-	109		
Haripad	-	122		
Alappuzha	-	157		
Cherthala	-	178		
Ernakulam	-	219		
Aluva	-	240		
Angamali	-	251		
Chalakkudi	-	268		
Thrissur	-	297		
Palakkad (via. Alathur)	-	365		
Kunnamkulam	-	319		
Kuttippuram	-	351		
Thirurangadi	-	389		
Ramanattukara	-	409		
Kozhikode (via. Kuttippuram)	-	425		
Quilandy	-	449		
Vadagara	-	472		
Mahe	-	488		
Thalassery	-	492		
Kannur	-	515		
Thaliparamba	-	538		
Payyannur	-	561		
Kanhangad	-	591		
Manjeswar	-	660		
<b>2. From Thiruvananthapuram (M.C.Road)</b>				
Kilimanoor	-	40		
Kottarakkara	-	74		
Adoor	-	95		
Pandalam	-	105		
Chengannur	-	118		
Thiruvalla	-	128		
Changanassery	-	136		
Kottayam	-	154		
Ettumanoor	-	165		
Muvattupuzha	-	209		
Perumbavoor	-	228		
<b>3. From Thiruvananthapuram (NH)</b>				
Balaramapuram	-	13		
Neyyattinkara	-	20		
Amaravila	-	23		
Parassala	-	30		
Kaliyikkavila	-	32		
Nagercoil	-	70		
Kanyakumari (Cape Comerin)	-	89		
<b>4. From Thiruvananthapuram</b>				
Kovalam	-	13		
Vizhinjam	-	16		
Kattakkada	-	19		
Nedumangad	-	20		
Neyyar Dam	-	27		
Chirayinkil	-	40		
Varkala	-	56		
Ponmudi	-	61		
Kallada	-	84		
Pathanapuram	-	87		
Karunagappalli	-	98		
Ochira	-	107		
Mavelikkara	-	122		
Pathanamthitta	-	113		
Kozhencherry	-	120		
Aranmula	-	128		
Ranni	-	129		
Moozhiyar	-	178		
Palai	-	183		
Vaikom	-	192		
Koothattukulam	-	194		
Thrippunithura	-	212		
Kothamangalam	-	221		
Thodupuzha	-	217		
Peerumedu	-	231		
Moolamattom	-	235		
Thekkady	-	253		
Devikulam	-	308		
Mattancherry	-	223		
Kalamassery	-	232		

Irinjalakuda	- 286	Madura	- 250
Malayattoor	- 244	Kanjirappally	- 39
Kodungalloor	- 308	Vaikom	- 40
Vadakkancherry	- 316	Palai	- 28
Shornur	- 330	Changanassery	- 28
Guruvayur	- 329	Thiruvalla	- 26
Chavakkad	- 332	Chengannur	- 36
Pattambi	- 345	Pandalam	- 50
Alathur	- 340	Ponkunnam	- 34
Ponnani	- 360	Mundakayam	- 53
Perinthalmanna	- 368	Thodupuzha	- 65
Malampuzha	- 378	Peerumed	- 78
Malappuram	- 381	Kumili	- 110
Kottakkal	- 385	Thekkady	- 115
Manjeri	- 394	Erumeli	- 56
Nilambur	- 418	Sabarigiri	- 119
Parappanangadi	- 434	Kumarakom	- 14
Kalpetta	- 514	Guruvayur	- 161
Mananthavady	- 532	Palakkad	- 200
Thiruchenthoor	- 167	<b>From Ernakulam</b>	
Shenkotta	- 111	Bangalore	- 564
Madurai	- 306	Pathanamthitta	- 135
Mangalore	- 727	Idukki	- 132
Velloor	- 758	Kattappana	- 158
Chennai	- 752	Thekkady	- 192
<b>From Kollam</b>		Punalur	- 177
Kottarakkara	- 30	Mattupetty	- 145
Kottayam	- 105	Edamalayar	- 82
Erumeli	- 118	Vaikom	- 29
Pamba	- 172	Moovattupuzha	- 42
Punalur	- 46	Kothamangalam	- 55
Pathanamthitta	- 72	<b>From Kozhikode</b>	
Shenkotta	- 98	Vaithiri	- 63
Tuticorin	- 214	Madura	- 384
<b>From Alappuzha</b>		Palai	- 259
Ranni	- 97	Kalpetta	- 73
Chengannur	- 64	Pulppally	- 125
Thakazhi	- 23	Sulthan Bathery	- 97
Harippad	- 35	Mysore	- 214
<b>From Kottayam</b>		Ootty	- 172
Devikulam	- 188	Moolamattam	- 253

Palakkad	-	143	Thrippunithura	-	211
Thamarassery	-	30	Ernakulam	-	221
Bangalore	-	344	Edappalli	-	230
<b>From Palakkad</b>			Kalamasseri	-	235
Coimbatore	-	54	Aluva	-	241
Ootty	-	140	Angamali (Kalady)	-	250
Valayar	-	19	Chalakkudi	-	265
Guruvayur	-	98	Irinjalakuda	-	272
Anakkatty	-	102	Nellayi	-	278
Chittoor	-	74	Ollur	-	289
Annamala	-	114	Thrissur	-	296
<b>DISTANCE (RAIL) - (Kilometre)</b>			Mulamgunnathukavu	-	305
<b>From Thiruvananthapuram</b>			Wadakancheri	-	312
Pettah	-	2	Vallathol Nagar	-	324
Veli	-	8	Shornur	-	328
Kazhakoottam	-	13	Ottappalam	-	341
Kaniyapuram	-	17	Lakkidi	-	349
Chirayinkil	-	28	Parali	-	363
Kadakkavoor	-	31	Palakkad	-	373
Varkala	-	41	Walayar	-	398
Edava	-	45	Coimbatore	-	427
Paravoor	-	52	Erode	-	528
Mayyanad	-	56	Salem	-	587
Kollam	-	65	Jolarpetta	-	707
Perinad	-	74	Katpadi	-	791
Munroethuruthu	-	80	Arkonam	-	852
Sasthamcottah	-	85	Thiruvallur	-	879
Karunagappally	-	92	Avady	-	900
Ochira	-	100	Perambur	-	915
Kayamkulam	-	106	Chennai	-	920
Mavelikkara	-	114	<b>From Shornur</b>		
Chengannur	-	126	Vallapuzha	-	10
Thiruvalla	-	135	Cherukara	-	21
Changanacherry	-	143	Angadippuram	-	28
Chingavanam	-	153	Pattikkad	-	34
Kottayam	-	161	Melattur	-	41
Ettumanur	-	171	Vaniyambalam	-	56
Kaduthuruthy	-	182	Nilamboor	-	66
Vaikkom Road	-	186	Pattambi	-	12
Piravom Road	-	192	Pallipuram	-	27
Kanjiramattam	-	196	Kuttippuram	-	30

Thirunavaya	-	37	Sucheendram	-	75
Thirur	-	45	Agastheeswaram	-	84
Thanur	-	53	Kanyakumari	-	87
Parappanangadi	-	61	<b>From Kollam (Kollam-Shencottah)</b>		
Vallikunnu	-	67	Kilikollur	-	5
Kadalundi	-	72	Kundara	-	12
Feroke	-	77	Kottarakkara	-	24
Kallayi	-	85	Punalur	-	44
Kozhikode	-	86	Shencottah	-	94
West Hill	-	91	Thenkasi	-	102
Elattur	-	98	Sivakasi	-	200
Quilandy	-	111	Virudu Nagar	-	225
Vellarakkad	-	116	<b>From Palakkad</b>		
Tikkoti	-	120	Puthu Nagaram	-	16
Payyoli	-	123	Kollamcode	-	23
Iringal	-	127	Meenakshipuram	-	42
Badagara	-	133	Pollachi	-	58
Nadapuram	-	138	<b>From Thiruvananthapuram (Via. Chennai)</b>		
Mahe	-	146	Guntur	-	1058
Thalassery	-	155	Tirupathi	-	1068
Kannur	-	176	Vijayawada	-	1353
Valappattanam	-	182	Secunderabad	-	1713
Pappinisseri	-	184	Hyderabad	-	1717
Ezhimala	-	204	Nagpur	-	2028
Payyannur	-	209	Visakhapattanam	-	1503
Thrikarippur	-	215	Pune	-	2009
Nileswaram	-	229	Mumbai	-	2065
Kanhangad	-	238	Bhuvaneshwar	-	2147
Kasaragod	-	261	Ittarsi	-	2326
Kumbla	-	273	Bhopal	-	2418
Manjeshwar	-	290	Hawra	-	2590
Ullal	-	299	Jhansi	-	2709
Mangalore	-	307	Agra	-	2924
<b>From Thiruvananthapuram</b>			Mathura	-	2978
Nemom	-	8	Delhi	-	3018
Balaramapuram	-	14	Ahamedabad	-	2820
Neyyattinkara	-	18	Ludhiyana	-	4286
Parassala	-	38	Jammu Thavi	-	4360
Kuzhithura	-	38			
Nagercoil	-	71			